Status, Solidarity and Social Mobility in Domestic Space

A comparative study of kitchens, cooking and culinary practice in Ile-Ife, Nigeria

Olufolake Opeyemi Ekundayo

Thesis submitted for the degree of Doctor of Philosophy

In

The Faculty of the Built Environment
The Bartlett School of Graduate Studies
University College London

2007

SIGNED DECLARATION

I, Olufolake Opeyemi Ekundayo confirm that the work presented in this thesis is my own.

Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Signed: ……. Date: 21 September 2007

Olufolake Opeyemi Ekundayo

ABSTRACT

The thesis explores how three prominent themes in social relationships - namely, status, solidarity and social mobility - are manifested in different lifestyle settings, by analysing the dynamics of culinary practice within the domestic space, based on an ethnographic study of seventy five households from the mid 1990s in Ile-Ife, Nigeria.

Many ethnographic studies identify the kitchen as a gendered space, and argue that because gender defines status and power relations in society, such distinctions will be manifested in the way space was designed and used. A gendered space is therefore a status space. The purpose of this study is show how status is manifested in space, and to measure this manifestation by analysing the distribution of culinary practices in space.

The sample cuts across the socio-economic strata of Ile-Ife, and within these neighbourhoods, people live in two distinct spatial patterns, whereby one shares their domestic space with other households, while the other lives separately from other households. By using a combination of architectural morphology tools based on the space syntax theory and descriptive statistics, the study analyses the shared presence of persons, objects, activities, and food in space in order to measure the interrelationship between space and social status.

The study found that there was a tendency for the status of variables to be influenced by other variables that shared the same spatial environment. The study found that higher status culinary activities and objects were associated with segregated spaces in shared accommodation, which suggests that segregation correlates with exclusivity. However, in the modern self-contained households, higher status activities took place in integrated spaces and in this sense fostered inclusion with the family.

Socially, the findings suggests that there is a convergence of social positions and blurring of age and gender role boundaries in relation to culinary activity, with increased socio-economic status and social mobility of women.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

DEDICATION

To the loving memories of

Mrs Claudiana Ashabi Dipeolu

Dr(Mrs) Adeline Bisi Durotoye

and
with a deep sense of sadness, yet with gratitude to God
for a life that has blessed me richly,
to my beloved aunt

Mrs Grace Olayemi Olonode (nee Fagbemi)
15.04.1947 to 07.12.2006

who went to be with the Lord unexpectedly
less than 72 hours before I was due to hand in this thesis.

E sun re o, l'aya Jesu.

ACKNOWLEDGEMENT

My sincere gratitude goes to Professor Julienne Hanson, my long-suffering supervisor. I thank her for her endurance, her guidance, and her determination to make me do better.

I'm grateful to my mother, Mrs Yewande Ekundayo, a.k.a Iya Folake, for her love, prayers and unwavering support. A Yoruba child is one with many 'parents', and my thanks go to Professor Adebayo Adedeji, Mr Sesan Dipeolu, Professor and Mrs Adeokun, Mrs Eyitayo Bamimore, Mrs Omolara Ojo-Ade, and Mrs Benedicta Sijuwade. I thank my old university lecturers who helped shortlist the research assistants and advised me on data collation and literature, Professor and Dr (Mrs) Amole, Professor R Mills-Tettey and Mr Jide Onabanjo. I mention my uncles and aunts, Chief Oladapo Fagbemi, Dr (Mrs) Mayowa Okeowo-Fagbemi, Mrs Kofo Akingbade, Professor Kunle Fagbemi, Dr and Mrs Folahan Fagbemi, Dr Caleb Kayode Ekundayo, and Mr Dele Ekundayo. I wish to acknowledge those 'parents' who are no longer with us – Reverend Olusola Fagbemi, Mrs Claudiana Dipeolu, Dr (Mrs) Durotoye, Mrs Yemi Olonode (Aunty Yemi), Mrs Kayode, Mr Femi Ekundayo, and my father, Professor Samuel Ayotunde Ekundayo– *E sun re o!* (Rest in peace).

If I had done this alone, I would have given up, so I have to thank my best friend and cousin, Omolola Adeokun who has been on this incredible journey with me to get a PhD as part-time students, whilst working in Architecture. I'm indebted to Julianna Okeke, my prayer partner, Anne-Marie McQuilkin, Ola Banjoh and Mrs Abimbola Awujuola, as well as my sister and brother-in-law, Toyin and Idowu Rotifa, my brother, Adedipe Adedeji, my many cousins, the Fagbemis, the Olonodes, and the Adeokuns, and to Dr (Mrs) Laperi Aghadiuno (nee Dipeolu).

I acknowledge my fellow students at the Bartlett, Muhammad Abdulrazzaq-Omar, Homeira El-Shahyesteh, Primali Paranagamage, Luiz Amorim, Adan Lopez, Vini Netto, Sharifah Mahdzar, Kyung Seo, and Christos Hadjichristos for being there for different parts of the journey.

I also wish to thank my Christian family from Kensington Temple, London, Harmony Christian Centre, London, the former Dew of Hermon Fellowship and Manna Christian Fellowship, Maidstone, and in particular, Pastors Wale and Ronke Olulana, the Ibiyemi-Alukos, the Fajemisins, the Olasodes, the Alechenu, the Adetukasis, Bunmi Ajayi, John and Bunmi Osaghae, Miss Bunmi Adebajo, and Pastor Ruth-Ann Cannings. I apologise to those whose names are not here, but you are loved and appreciated.

Between the time of my viva and completing the corrections, I got engaged to Akintunde Isaacs-Sodeye, and I wish to acknowledge him as part of my success. His support has been invaluable.

Most of all, I wish to thank my Lord and my God. He did keep His promise never to leave me nor forsake me. Thank You LORD, for loving me.

I Introduction & problem definition

The sociological concepts of status, solidarity and social mobility are usually described in terms of the society at large, but not as well from the perspective of the domestic environment and relationships, even though it is widely acknowledged that the domestic space is the one environment that makes social and cultural interaction accessible to every person. This study seeks to explore how these interactions are manifested in the way and manner domestic space is used. One way of addressing this issue is to describe sociological concepts in spatial terms within a given culture and sub-culture. In this case, the "culture" is the Yoruba of South-Western Nigeria, and the sub-culture is culinary practice. These provide the context and variables with which to study interrelationships and interactions. The purpose of this chapter is to establish the context in which the study is to be carried out, the questions to be addressed, the methodology and the tools that will be employed in the study.

ESTABLISHING A CONTEXT

It is almost obligatory for sociological essays on the domestic environment to make a link between society and the home. For example, when Weissman (1994) described the home as a "metaphor for society", she suggested that the home was a direct reflection of the social inequalities, cohesion and structure in society at large, firstly, in a symbolic sense in that whilst one category of people "controlled" society and the home, the other category "maintained it"; and secondly, in a spatial sense, in that the manner in which domestic space is zoned correlates with the spatial segregation of class and sex in society. Likewise, in Manifest Domesticity, Kaplan (2005) argued, based on the writings of Catherine Beecher, that the political arena and public life in the lead up to the American Independence, and ultimately the build-up of modern American society, was significantly influenced by the domestic lives of the nation's leaders.

Essentially, these studies see the domestic environment as a social system, in a sense, a hegemonic system, to borrow the term coined by Antonio Gramsci to describe the political and ideological concepts by which one group claims domination over another (Abercombie et al, 2000 pp 161). According to Connell (2002), and Bellamy (1994), social

systems tend to utilise culturally-recognised hegemonic values to vertically rank, stratify and assess differences amongst it members. In the same way, Bourdieu (1979) argues that society responds to this structure in lifestyle choices and tastes, which further reinforces social differences. Lifestyle choices and tendencies are also manifested in the type of goods consumed or aspired for, and they vary according to the category of the person's education capital and social origin, in other words, achievements and heritage. Similarly, lifestyle products would also tend to derive a social value from their capacity to convey a socially recognised use.

The main question to be asked is whether social hierarchy and social distance has a spatial dimension in the domestic environment, in other words, is socially defined position exhibited in the manner space is used, and, if so, can it be measured? Therefore, using two prominent themes in sociology, namely status and solidarity, and a third related theme of social mobility, this study seeks to investigate how they are manifested in different lifestyle settings in households in Ile-Ife, Nigeria, by analysing the dynamics of culinary practice within the domestic space. Spatial configuration will be analysed using the space syntax methodology developed by Hillier and Hanson (1984).

Research data are based on an ethnographic and spatial morphological study conducted in mid 1990s of seventy-five households in Ile-Ife, a medium sized town in Southwest Nigeria, with a population of 326,000 (http://www.world-gazetter.com/c/c 12.01.2004) of mainly ethnic Yoruba people (See Fig 1.1p2 & Fig 1.2 p3: Map of Nigeria). Ife is about 250km from Lagos, Nigeria's former capital and largest coastal city.

Demographically, the households come from different socio-economic backgrounds, ranging from academic elites to working families in skilled manual, clerical employment to farming and trading. They exhibit various levels of education achievement, Westernisation, and are at different stages of the development life cycle of the family but with a common ethnicity (Yoruba) and culture. Structurally and spatially, the sample households range from extended polygynous households (or *compound families*) residing in family compounds *(agbo-ile)*, to multi-family households in shared tenement properties to single nuclear family households in self-contained modern houses.

Image removed for copyright reasons

Fig 1.1: Map of Nigeria in West Africa

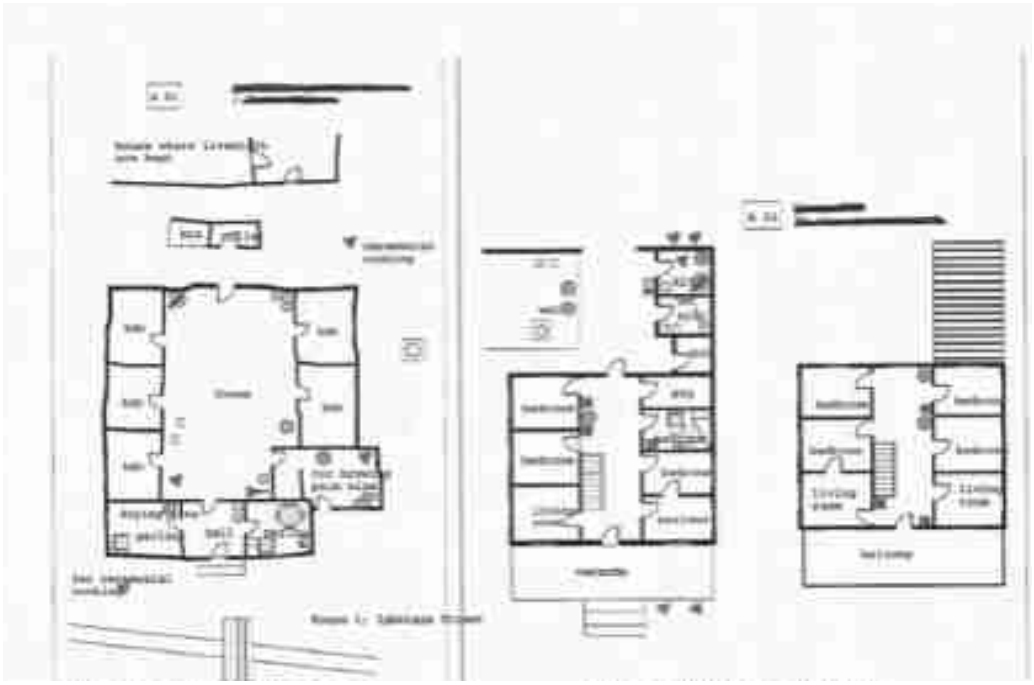
Source: Obafemi Awolowo University in colour (1984). University Press Ltd

Image removed for copyright reasons

Fig 1.2: Map of Nigeria (Ile-Ife highlighted) - Source: http://www.mbendi.co.za/cyngmps.gif downloaded 25.11.2006

The sample consists of households that live in two distinct lifestyle settings but from three spatial housetypes as follows:

- One comprises households living in shared accommodation, which is made up of two of the three housetype patterns in the study. The first group are households in extended family compounds, households, who share space and facilities with relatives, called the *orowa* housetype. The *orowa* is a central communal and multi-functional living, service and access space shared by every resident household. The second group consists of several households renting rooms in multi-family tenement units, and share with non-kin, who dwell in the rooming housetype. Like the orowa housetype, the rooming housetype has a shared central concourse and multi-functional space called the hall, but it is narrower and elongated.



A typical extended family house - orowa house

A typical multiple-family house - rooming house

Fig 1.3: Floor plans of typical shared accommodation houses.

They tend to be lower income families, either employed in the informal sector, i.e. farming, trading, skilled and unskilled labour etc., or in clerical work. As these households live in close proximity, they may be expected to rely on their social and neighbourhood networks to manage their daily affairs such as for childminding, pooling of resources, and the sharing of communal facilities for cooking, washing, toilets, bathrooms, cleaning and housekeeping. The space layout with private rooms flanking the *orowa* and hall also allows continuous observation of each others' spaces and properties. Individuals or households are either allocated or rent rooms to be used for sleeping, dining, reception, and storage as they deem fit, and it is only these spaces they have exclusive access to and control over.

- The second group comprises households living in self-contained accommodation (i.e. houses and flats), referred to as the modern housetype. These are households who do not share their spaces with anyone outside of the economic production unit, and for the purposes of this study, they will be termed the 'exclusive' households, to mean they occupy their domestic space to the exclusion of other households. They tend to be nuclear families and part of the new middle class and professional elites with higher income and employed in the formal sector, such as in local government or the university.

Fig 1.4: Layout of a typical single-family self-contained house (modern housetype)

> The modern housetype also constitutes households with educational capital and are higher in the social structure. Their economic circumstances allow them to dwell separately from their neighbours, and, as their income and social standing can enable them to purchase childminding and housekeeping services, they do not need to share any facilities with others. Unlike the shared accommodation above, the spatial layout and circulation pattern here does not possess a flexible brief, such that spaces tend to be generally used for the purpose for which they are designated. Also, the woman of the house would tend to have access to and, perhaps, control over almost all spaces in the house.

These lifestyle groups occupy different social spheres in terms of status, solidarity and social mobility in the society at large by virtue of their level of Westernisation. Yet, because they possess a common cultural heritage and ethnicity, and, presumably, similar basic values, there is still a question to be addressed in terms of how the domestic environment mirrors the tastes and distinction acquired through Western education or as Bourdieu (1979) aptly put it, their cultural competence and educational capital across the board, and the study aims to address this through the lens of culinary practice.

Culinary practice will be explored in terms of food, gender, space use, material culture, roles and activities using a qualitative research process. "Food" would consist of diet, and methods of preparation, "gender" would consider hierarchy, roles, household form and the domestic mode of production, "material culture" refers to gadgets, technology, implements, utilities, facilities and infrastructure and "activities" to culinary-related practices and housekeeping. Several studies in the social and health sciences consider that these parameters constitute culinary practice, and collectively represent other aspects of our social experience, particularly within the domestic setting (Dembinska 1988, Revel 1992, Heldke 1992, Curtin 1992, Valentine 1999, Silva 2000). For instance, food choices indicate among other things, history and culture contact, from the invader, the traveller and the immigrant, (Zuckerman 1998). The gendering of the kitchen reflects how individuals are involved in the household economy and even sometimes beyond the home; and technology gives insight into material culture and values (Csikszentmihalyi, Rochberg-Halton 1981). Though these components are inherently non-spatial, it can be argued that they embody spatial themes in the way they occupy space.

RESEARCH QUESTION AND PROBLEM DEFINITION

The aim of the study is to investigate how status, solidarity and social mobility are manifested in space, by observing the spatial patterns of persons, objects, activities and food in respect to kitchens, cooking and culinary practices in households in Ile-Ife, Nigeria.

Status, solidarity and social mobility

One of the questions will be to explore what constitutes status, high, low or equal, and modes of solidarity in the home and how there are spatialised. It is therefore expedient at this juncture to define status, solidarity, social mobility and space in broad terms, and then state how these parameters relate to the study.

According to Abercombie et al (2000 p 345), status is defined in three ways, "first, as a position in a social system, secondly, as the relative position of a person in a publicly recognised scale or social stratification, and thirdly, in association with lifestyle and distinct patterns of consumption". Compton (1993) stated that most complex social systems are constituted by inequality in the form of social stratification, and status derived from heritage, hierarchy, social standing or prestige and material inequality. Status is thus characterised by distinction and social differentiation. Status in the family is ascribed rather than achieved in the sense that within the household, the sex and the order of the birth of a child (i.e. first, second, third) imparts to them a status that in some situations may determine their future occupation and even inheritance. Haralambos & Holborn (2004) argue that though in traditional society status may also be associated with some privileges beyond the kinship group, such as among persons of royal lineage whose children are born to rule, yet, in industrial society, status is achieved, and a person's birth status does not prescribe their future occupation.

Food preparation, along with other non-income generating work in the home, like childcare and housekeeping, usually requires a division of labour. Domestic work expends labour, time, and has an economic cost, which is not usually quantified in monetary terms, and households generally have to allocate resources to it at the expense of other income-generating work (Oakley 1972 1974, Jackson, Scott 2002). Structuralists argue that, in general, the division of labour in society engenders high productivity on one hand and specialisation on the other, which separates people into different categories such that a power structure is created (Cuff et al 1998; Bilton et al 1987). This power structure is manifested in the exercise of authority, delegation, accountability and responsibility,

which effectively results in people, activities, objects and settings acquiring differing statuses.

Social differentiation is required to structure social relationships, and this differentiation is supported by a social division of labour within the society at large, and a sexual division of labour in the domestic environment (Parr, 2002; Storm 2002; Oakley, 1974, 1972). The sociologist, Auguste Comte, argued that this division of labour increased dependency between individuals and resulted in a cohesion and social solidarity, and Emile Durkheim (1984, *1893 translated*) followed on to argue that as societies became complex this basic or mechanical solidarity expressed in the commonly held values of simple societies became an organic solidarity derived from socio-economic specialisation and interdependence.

Basically, solidarity has its origins in trying to explain how social networks are formed in society. Durkheim (1893, translated: Halls 1984) stated that in pre-industrial society, solidarity was based on the sanctity of the collective consciousness, but in industrial society, the individual became paramount and the organic solidarity results in a structural interdependence on the one hand and recognition of the rights of the individual (Fararo, Doreian 1998). Current essays on solidarity now tend to focus on the relational aspects of the members of the solidarity. A group of people in a social system can cohere to form a network whereby they are integrated by a central cause or pivot, and emerge as a distinct entity within the structure. Johnsen (1998) cautions that though cohesion is a vital ingredient of solidarity, yet it is not a synonym for solidarity, because cohesion on the basis of opposition to a cause may constitute solidarity, but cohesion on the basis of indifference to that same cause will not have the same effect. The discourse of solidarity revolves around themes such as: (a) common interests centred on a pivot, (b) physical co-presence of individuals, (c) common emotional mood, (d) mutual obligations to comply with the common interests, (e) social and friendship networks, (f) group solidarity, and (g) "solidary" ties – a term coined by Fararo and Doreian to link two levels of structure (see below), and (h) reciprocity (Heise, 1998; Fararo & Doreian, 1998; Breiger and Roberts (1998)). Therefore, Fararo & Doreian, 1998 see solidarity as one requiring a pivot to whom there is allegiance, which implies an inequality. Also when the tie is one between individuals who are not in direct contact, such as colonial subjects to a colonial master, then the connection is a *'solidary'* tie, because it is maintained across the structural divide, and it is not spatially co-present, or in other words it is trans-spatial; and this is to be distinguished from a direct interpersonal tie in a network.

Essentially solidarity refers to the cohesion, mutual dependence, community of interests and responsibilities of a group, but in the same vein, represents exclusivity and exclusion form others not considered part of the group. As such, individuals may belong to several solidarity groups simultaneously, because people engaged in similar activities have a common interest or goal, and in some instances, tend to be spatially co-present (i.e. occupy the same space at the same time).

In that sense, the effect of the solidarity is to unify or cohere this group of people around a pivot, and at the same time exclude others. So whilst solidarity represents collectiveness, status represents difference.

Compton (1993) noted that though society maintains its stratification through solidarity with people of equivalent standing, it also seeks to promote itself or achieve social mobility through means that relate more to personal achievement than to ascriptive qualities like inherited wealth and rank.

Social mobility is the degree to which a person can change their social status. There are two kinds of mobility, intra-generational, i.e. whereby a person's social status changes in the course of their lifetime; and inter-generational, where the social status of the descendants of a person changes from that of their parents (Abercombie et al 2000; Bilton et al 1987). In feudal societies, the inequality of power is inherited at birth and it is passed on to the next generation, and as Bilton et al (1987) pointed out, in such situations, there is also a desire to maintain status even in the choice of marriage such that endogamy is practiced. If such a person, particularly a female marries below their social class, then their status may be reduced, and that of their children would most certainly be reduced.

Social mobility occurs when there is movement between the different levels of hierarchy, such that people can then move into higher or lower status groups and acquires solidarity with others in that group (Haralambos, Holborn, Heald 2004). Social mobility, therefore, measures the ease or resistance of that movement, in other words, the fluidity of the social grouping. There is also a sense in which fluidity can be evident in societal values and cultural paradigms as a result of social mobility of individuals or generations, whereby lifestyle choices, taste and aspirations reflect a change in outlook (Clarke, 2001; Bourdieu, 1979). As such, this study will also assess the manner in which social mobility is spatialised in domestic space and culinary practice.

Social mobility in most parts tend to go upwards, but it can also move downwards in situations where a person finds themselves in a significantly lower income bracket following a change of career or unemployment. There are signs now that increased higher education in Britain for example is enabling children of working class households compete with the middle class for jobs, such that the middle class children may not be able to maintain their social status as independent adults (Haralambos and Holborn 2004). Likewise, there are speculations that the increased number of women working in offices is bringing them into contact with people from diverse social backgrounds resulting in an increase in cross-class and even cross-cultural marriages. Furthermore, there is a perceived difference in social mobility between men and women, with men seeming to have more fluid social mobility than women (Bilton et al 1987).

The relationship between status, solidarity, social mobility and people in indicated in the schematic diagram below. Status and solidarity have defined boundaries, and social mobility seeks to permeate those boundaries.

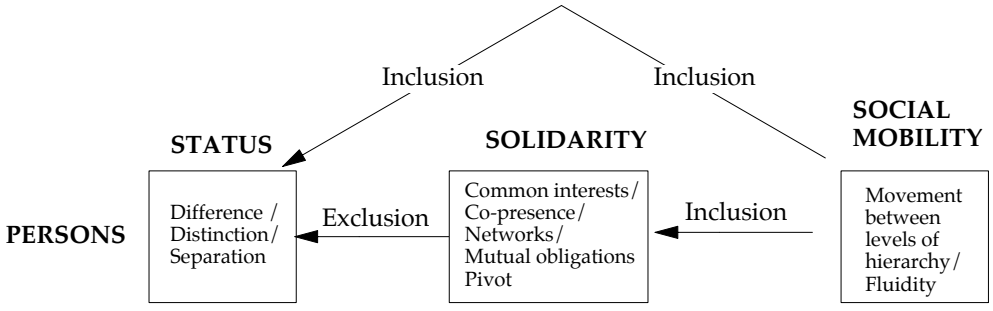


Fig 1.5: Schematic diagram of the relationship between status, solidarity, social mobility and persons.

Several studies have argued that there is or should be a relationship between the conscious articulation of space, the use of space, and the cultural perspective that is inherent or reflected by the interaction of these three components (Kus and Raharijaona, 1990; Wilk 1990, Lawrence 1990). It has also been argued that architecture, i.e. the creative intention in the design and articulation of space, can serve as a social barometer of the ideology and philosophy held by individuals or groups of people (Malmar and Vodvakar 1992). To this end, Rapoport (1990) and Donley-Reid (1990) recommend that because the built

environment is not neutral to social expressions of culture, ethnographic information expressed via symbolism and meaning is embodied in material objects and human activity. Studies in ethnography and material culture claim that some activities such as sacred or menial tasks, are status signifiers, and certain objects such as modern technology, electronic goods and sacred artefacts are status symbols (Amadiume, 1987; Csikszentmihalyi and Rochberg-Halton 1981). Other studies in architectural morphology have shown how rooms can be imbued with hierarchical ranking that determines accessibility and exclusion (Spain, 2000; Hanson 1998; Kent 1990). With respect to the workplace, Vischer (2005) suggested that spatial configuration directly signified the status of employees in traditional office settings and open plan layouts.

Therefore, if people occupy space according to status, if roles are allocated according to status, and if space can indicate status, it should be possible to correlate the morphological properties of status space with the spatialisation of status activities and objects. Likewise, as solidarity permits some form of equivalence amongst variables, it can also be argued that people of equal standing would be permitted access to equivalent space, perform activities and handle material commensurate with their standing, or conversely be excluded.

If the above principles of the interrelationship between status, solidarity, social mobility and persons indicated in Fig 1.5 above was applied with respect to space, solidarity can be expected to be manifested in a co-present occupation of space, status will be manifested in the separation or distinction between spaces and social mobility will allow the permeation between boundaries of occupied space in order to achieve a change of status. It is therefore necessary to use spatial analytical techniques that can measure joint occupation, connection, boundaries and difference between spaces. To this end, it is proposed to examine this spatial pattern by using the principles of the space syntax theory developed by Hillier & Hanson (1984) in the Social Logic of Space.

The space syntax methodology analyses spatial configuration in terms of the pattern of connection between spaces, and the relative position of spaces to others within the system by reducing floor plans to graphs indicating these properties, which can then be compared. The methodology is based on the theory of space originated and introduced by Hillier & Hanson (1984) in the Social Logic of Space. It has since been used extensively in the analysis of existing urban settlements and domestic spaces and as a design tool by

architects and urban planners for its wide reaching application to the social aspects of the built form. As a tool, it serves to objectify space and its attributes, which is particularly useful in domestic space that can be laden with symbolism and subjectivity. The theory and methodology is reviewed and presented in more detail in Chapter Two – Reviewing Previous Research, and Chapter Four – Methodology.

Why the kitchen?

If people, roles, places and even commodities can bear symbols of status, then arguably the domestic space should and, in particular, the kitchen, which is almost always cited in ethnographic and sociological studies as a viable environment to study the dynamics of human interaction and interrelationships (Rendell, 2000; Ardener, 2000; Deutsche, 2000; Valentine, 1999; Revel, 1992; Heldke, 1992). Indeed, there are several reasons why a study of kitchens would be of interest to architects and sociologists.

For instance, a study of kitchens will make it possible to assess roles and how aspects of work are allocated amongst individuals particularly on the grounds of gender, age and social status. In this sense, the kitchen may serve as a means of observing the manner in which principles of social hierarchy can be employed within a culture. Gender issues in this respect would consider the mode and locus of domestic practices, and role allocation or as the case may be, delegation, on the grounds of gender and sex. Kitchens can also serve as a tool for comparison between different cultures and sub-cultures (Lawrence 1987, 1982a), and "as a means of comparing the conceptual approaches to design and space use between architects and laypersons" (Amole, 1985).

If lifestyle choices are arguably evident in the materials people acquire or aspire to acquire, the study of kitchens can also serve as a means of assessing how the household chooses to expend its labour, time and money (Clarke, 2001; Miller 2001). It is worthy of note that a significant number of technological advances in the form of domestic appliances and implements in the home have been driven by the quest to reduce the labour-expending and time-consuming processes in food preparation and preservation. The modern kitchen is one of the most technically complex spaces in the home, such that even in its most basic form it relies on utility and infrastructure facilities including water, fuel, energy, and drainage more than any other space, perhaps except the bathroom. This suggests that the basic construction cost of a kitchen could exceed that of many other spaces in the home, which implies that the space, a service space, constitutes a considerable investment in the domestic environment.

Furthermore, as an activity space, as opposed to a sedentary space like say the living room or bedroom, the design of the kitchen (and also the bathroom) can also indicate how well an individual, e.g. disabled or partially sighted people, can be accommodated in or alienated by a house.

The study seeks to investigate the pattern by which these social concepts are manifested in space by tracking the footprints of roles, activities and objects across and within spatial boundaries, and in different lifestyle settings and socio-economic backgrounds. The argument here is that individual people, activities, and objects possess or can acquire differential levels of accessibility to space, and several permutations of co-spatial compatibility and incompatibility can occur between two or more activities, objects and food, as well as between activities and objects; activities and space; objects and space; people and activities; and people and space. In terms of the lifestyle setting, one category of households share their domestic space with others, and the other have the place to themselves, yet they all have to decide which combinations of proximity, equivalence, distance etc. to employ within their domestic environment and the household personnel available to them. It is therefore useful to explore how social differences and domestic settings influence the way and manner in which space is used.

CONTEXTUAL CONSIDERATIONS

One of the challenges encountered early on in this study was in replicating previous work on domestic space and households in the context in Ile-Ife. It became apparent that a sample-specific context had to be defined. This section presents the assumptions that underlie the study and the reasoning behind them as follows:

Limitations of cross-cultural interpretation of ethnographic studies
The four categories of cooking in Yoruba households
The inadequacy of the 'work triangle' for analysing culinary space
The use of the floor as a work surface
The use of outdoor space in culinary activity
The boundaries of culinary activity
Infrastructural facilities and utilities
Household structure

Limitations of cross-cultural interpretation of ethnographic studies

The original starting point for the study was the body of work carried out by Roderick Lawrence in 1982 and 1983, in a cross-cultural comparative study of Australian and English houses, described in more detail in Chapter Two – Literature Review. In this work, Lawrence (1988, 1983) correlated gender and status to the zonal classifications of spaces such that male/front/public/clean was contrasted to female/back/private/dirty spaces based on space labels. Of course, the limitation of this approach was that it could not account for spaces of transitional categories, and had presented rigid boundaries for classifying space. Nevertheless, he noted that there was a significant spatial relationship between the location of the kitchen, the laundry and the bathroom and that, in particular, the proximity or distance between these activities within the domestic space signified the existence of a cultural concept of compatibility and incompatibility between these activities.

When an exploratory study using a similar framework was applied to kitchens in a sample of 30 households from Ile-Ife (Ekundayo, 1988), the limitations of the English/Australian study became obvious. In the first instance, the binary classification of public/private, clean/dirty, front/back could not be imported in a consistent manner to the Yoruba-speaking sample in order to carry out a comparative assessment using similar yardsticks, due to linguistic limitations of the classification terminologies. Concepts like "public" and "private" did not have a clear and consistent literal translation in Yoruba. They could refer to collective or exclusive accessibility, communal or individual accessibility etc, and even then this accessibility was not available to everyone in a consistent way so as to make the categorisation clearly objective. A distinction was usually made between friends, maternal kin, paternal kin, strangers and co-resident individuals, in order to determine the level of accessibility to a space and the range of people to whom this applied and why, before a space could be classified as public or private.

Moreover, the Lawrence study was based on self-contained domestic units in which all the facilities were available within the curtilage of building; and even in cases where outhouses were used, none were shared with other households. However, in the Nigerian study, only the "Western designed houses" for single nuclear family households fulfilled this criterion. Several households lived with and shared spaces with other nuclear families, who may, or may not, be kin, in extended and multi-family set-ups. Furthermore, the single nuclear family households that lived in these "Western-style" houses usually had wards and members of the extended family resident with them, and were rarely isolated

from the extended kin. In addition, several households had non-resident members of the nuclear family, who had emigrated to the larger urban centres and abroad, being responsible for their economic upkeep by the regular remittance of money to their families. This implied that the funds generated by the economic activity of the resident members did not constitute the total financial resources available to them, which in a sense undermined the household as a unit for economic and ecological analysis of society as suggested by McC.Netting et al (1984).

There exists a danger in empirical field research of introducing a bias when using criteria that originated in other social contexts to query or interpret data. For example, during the field study, it was observed that the concept of "dirt" for the Yoruba respondents connoted that of filth, more associated with the rubbish heap and the toilet, but most certainly not the kitchen as the Lawrence classification shows. Most people would readily agree that food preparation was a messy activity but would consider it an affront on their hygiene standards to use the word for dirt to characterise their cooking space. Given this connotation of dirt, any attempt to ask a respondent to classify the kitchen in relation to dirt was likely to offend, and elicit defensive and sometimes hostile responses, which could possibly alienate the researcher from the respondent.

It can therefore be argued that it is an understanding of the rules of compatibility and incompatibility of activities such as eating, dishwashing, laundry and entertaining in the cooking space, taking place in spatial proximity, that indicates how the kitchen should be classified. As a result of these limitations, it became increasingly obvious that methods and concepts from previous research could not automatically be used in this context. In other words, a study of kitchens and culinary practice in Yoruba culture would require a building-up of the study criteria from first principles.

Yoruba Culinary Categories

From the exploratory survey carried out by Ekundayo (1988), on kitchens in Ile-Ife, four distinct categories of cooking were identified, namely, daily (domestic), ceremonial, professional (commercial) and religious/ritual. Daily domestic cooking takes place in the home for the regular consumption of the household. Ceremonial cooking takes place during times of celebration (weddings, child naming ceremonies, funerals) for the consumption of guests. Professional and commercial cooking is an occupation and takes place for the consumption of fee-paying customers. Religious cooking takes place at set times for the worship of the gods. An example of religious or ritual cooking takes place

when Yoruba Moslems celebrate the Eid-el-Kabir, (*Ileya* in Yoruba), to mark the time Prophet Ibrahim was to sacrifice his son, Ishmael, borne of Hagar, Sarah's servant girl, and Allah sent a ram in his place. Moslem men kill and roast the ram, and cut it up for the women to cook and serve. It is also said that practitioners of traditional Yoruba religion carry out rituals and sacrifices regularly. Yoruba Christians do not undertake any religious sacrifices, but would carry out celebration cooking for Christmas, Lent and Easter. Generally, these four cooking categories tend to be gender specific in role allocation, with the domestic cooking tending to be more female, ceremonial and commercial being mixed, and ritual cooking tending to be more male.

In this study, only daily cooking and ceremonial cooking will be examined out of the four because they are the categories common to all respondent households and can provide the data required to carry out a meaningful study.

The inadequacy of the 'work triangle' in analysing culinary space

The modern Western kitchen developed as a response to ergonomic and building services efficiency in domestic space. Large traditional houses were run with the help of service staff for virtually all aspects of domestic work but the evolution of the single nuclear family with neolocal residence and the transformation of society into smaller units of economic productivity meant that households had to be more self-sufficient in the domestic sphere. (McC.Netting, Wilk & Arnould 1984). Socially, the mistress of the home became more actively involved in food preparation and housework as she had no domestic staff to delegate work to. Spatially, the kitchen moved from a backstage [to borrow from Erving Goffman's (1959) terminology, to a frontstage position and is very much more prominent with the present day popularity of cookery programmes and celebrity chefs on the television. In contrast to large houses where the functions of the kitchen could be distributed over many spaces (laundry, pantry, scullery, utility), space standards proposed efficient work sequences for activities in small houses where the kitchen was self-contained.

The supply of clean water, the disposal of waste water, the storage of food and the application of heat to food are embodied in three modern household appliances and equipments namely the sink, the refrigerator and the cooker. The work sequence between these three equipments is called the work triangle, which each of these appliances being located at the vertices or nodes of the triangle. The Small Homes Council, founded in 1944, sponsored research in the University of Illinois, and originally coined the phrase, "kitchen

work triangle" which had guidelines for locating kitchen appliances in relation to counter space. (www.spaceplanner.com/RLD31): See Fig 1.6 below:

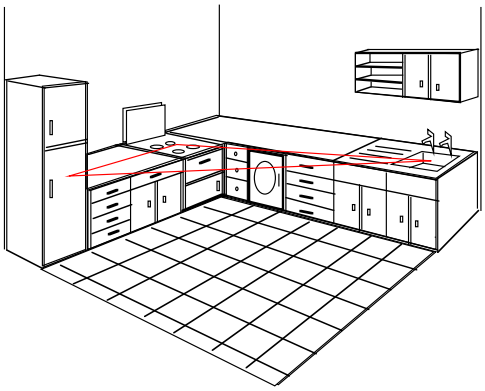


Figure 1 .6: The kitchen work triangle is indicated in red

Neufert (1980) recommended that the perimeter of this triangle should be 5500 to 6000 mm and not be crossed by through-circulation. Levi-Strauss (1966) showed that in a traditional setting, the three nodes of water, heat and storage would correspond to a well, a hearth and a granary. Whilst the nodes are distributed into several rooms in a traditional setting, they tend to be contained within the same spatial boundary in a modern setting. In other words, the use of the work triangle for defining the boundaries of the kitchen were weaker in a traditional set up but stronger in a modern setting. – See Fig 1.7 below.

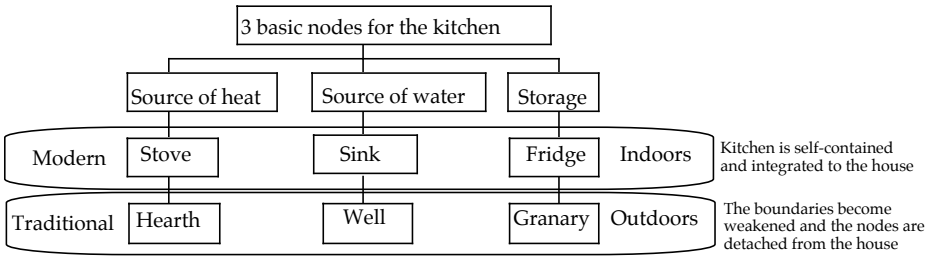


Figure 1.7: The three basic nodes for culinary activity.

Source: Author's sketch

The work triangle itself may be a misnomer because it does not even take "work", i.e. what takes place between the nodes into account. Major aspects of food preparation involve hands-on contact with food: mixing, cutting, peeling, slicing and so on, which can be labour-expending and time-consuming, and take place on work surfaces. Modern appliances such as microwave ovens, dishwashers and washing machines now feature strongly in the modern kitchen such that the work triangle is gradually becoming obsolete in its use in the study of kitchen. Indeed, the three basic nodes classification still present some limitations in use for a spatial analysis of kitchens in both the traditional and the

modern Yoruba setting. Certain foodstuff do undergo some form of cottage-industry processing to transform it to a semi-raw state, such as in the making of pap from corn, which indicates some pre-requisite preparation for cooking may still take place at home. These food-processing activities are labour intensive and require considerable hand contact with the food, and at present are not represented in the classification. The storage and retrieval of implements, utensils and appliances is also missing from the classification yet it stands to reason that the ease of accessibility for retrieval would help to make the kitchen more efficient. It is also common for the items for culinary use to be stored in other spaces besides the cooking space, or culinary related-spaces.

Therefore, the work triangle concept will be assessed in terms of the places for activities, the source of water, the source of heat, the storage of utensils and food.

The use of the floor as a work surfce

Tutt & Alder's (1979) New Metric Handbook for architectural space standards shows that standing is the most used posture in the modern kitchen and it corresponds to the level of the worktop and accessibility to storage at different levels.

Several Yoruba culinary practices, conversely, involve the use of the floor as a work surface in addition to an elevated one such as a table or bench. In addition, postures such as kneeling, sitting and standing are employed depending on the implements being used. Fig 1.8, Fig 1.9 and Fig 1.10 show the floor being used as a work surface, and Fig 1.11 the low stool used for sitting during food preparation.

Figure 1.8 (left): Making *amala*. The use of the floor as work surface

Figure 1.9 (right): Pounding yam (*iyan)*. The use of the floor as work surface

Image removed for copyright reasons

Figure 1.9 (left): The use of a saddle quern for grinding grains. In Yorubaland, the grinding stone (olo) used is smaller. Source: Brears et al (1983 p34)

Figure 1.10 (right): The low stool (*apoti*) for sitting on

Diet influences how space is used in food preparation in terms of posture and locus (See Fig 1.12). Traditional implements in Yoruba cooking include the grinding stone (*olo & omo-ori-olo*) and the mortar & pestle (*odo & omo-ori-odo)* among others discussed in Chapter Three – Yoruba houseform and household. The grinding stone, described by Ojo (1966) "as an indispensable item in the home as almost every single menu would require the grinding of foodstuff" is used with the floor as a work surface and the user in a kneeling position. The mortar and pestle is used to pound foodstuff to a dough, and is placed on the floor and used in a standing position.

Image removed for copyright reasons

Figure 1.12 : Anthropometric and Postures: Adapted from Ernst Neufert's (1983 p 11) Architects' Data. 2nd International Edition. London: Granada

When the floor is used as a working plane, users tend to face the centre of the space, hence a centripetal orientation, but when the elevated worktop is used, the user faces the wall, hence a centrifugal orientation as shown in Fig 1.13 below. The blue circle represents the centrifugal/ elevated work plane and the red circle represents the centripetal / floor work plane.

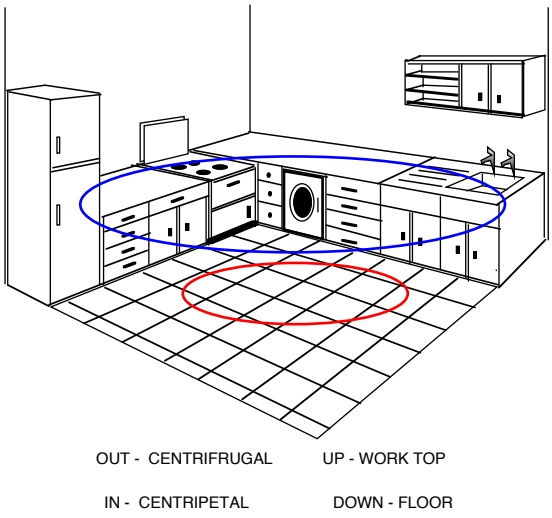


Figure 1.13: Centripetal and Centrifugal orientation on the floor and elevated work surface. Source: Author's sketch

During times of ceremonial cooking, a central space tends to be used because of the many cooks and helpers involved, and at such times, the centripetal orientation produces a socio-petal focus of co-operation and togetherness.

So, for this research, it is assumed that food preparation takes place on the floor as well as on elevated worktops, a variety of postures and centripetal and centrifugal orientations are used.

The use of outdoor space

The Yoruba terminology for the kitchen is *ile-idana*, which literarily translates as the "house for making a fire". The use of *ile* (house) as opposed to *iyara* (room) suggests that this is a structure detached from the rest of the house. Food processing activities, which tend to be messy, would generally be carried out in more spacious surroundings and in a place easy to clean, usually in outdoor space. Ceremonial cooking would tend to take place outdoors because it usually involves the use of open fires with its attendant smoke and fire hazard, along with too many cooks to be accommodated indoors.

So for this research, the outdoor space will be investigated as well as indoor space, where it is associated with culinary related activities and storage.

The boundaries of culinary activity

As culinary activity and storage patterns seem to be distributed in spaces beyond the immediate vicinity of the cooking space, the study looks at the overall domestic environment in addition to the cooking space. Consequently, a fundamental constraint that had to be lifted in this study was a conceptual one, and was that of seeing the kitchen as one space, designated and set apart for cooking. Instead, the kitchen had to be broken down into constituent components of food preparation activities, the transformation of food to an edible state and patterns of storage of food and utensils. This provided the flexibility of being able to analyse and map culinary activities that take place in locations beyond the cooking spot. In addition, it became possible to compare constituent elements across the sample households, which would have otherwise not been feasible given the different lifestyles and social environments represented in the sample. In this research, the kitchen will be assessed in terms of spaces that are used for culinary-related activities and storage, termed "culinary-mapped spaces".

Utilities and infrastructural facilities

Infrastructure facilities such as the water supply, electricity and drainage have a significant impact in the kitchen and culinary matters particularly when considering health, hygiene and safety issues, preservation and storage of food. In Nigeria, the building regulatory authorities are not always able to enforce rules for private landlords to provide pipe-borne water and mains electricity in their properties. Cooking gas on the other hand is supplied in cylinder bottles and is not mains borne, and is purchased according to what individual households can afford. Even when the fixtures and fittings are present in houses, there is no consistent supply of water and electricity from the communal mains. Households queue for long intervals, to fetch water from communal mains taps and mobile water tanks and store it for drinking, washing and cooking. The availability of water from wells varies with the rainy season and the water table, and water from streams and rivers would tend to be heavily polluted with filth and waste, and therefore unsuitable for drinking and food preparation. Likewise, the disposal of refuse is not regulated and households either dispose of their waste into the bushes, communal gutters and streams, or burn it. In terms of electricity, whilst most spaces would have electric lighting, some houses do not have electric light switches or wall sockets in outhouses where the kitchens may tend to be and this restricts the use of the kitchen to either daylight hours or with use of kerosene lanterns. The use of refrigerators and electronic appliances is restricted to the positions of sockets. Unlike appliances, which are portable, fridges are static, and may not always be kept in the kitchen particularly in these

outhouses. In this research therefore, the location of infrastructural facilities and utility services will be ascertained for each household in order to account for the geographical spread of the culinary-related circulation of each household.

Household structure

Goody (1958) emphasized that it was necessary to comprehend the way a conjugal family was structured in terms of food production, food preparation and consumption. In a Yoruba household, every individual has differing rights, responsibilities and obligations in respect of eating from a particular cooking pot. For instance, a man would expect to feed from his wife/wives' pot in return for his contribution to its contents, yet in his position as a lineage head or chief, he may expect food from pots beyond his immediate conjugal family. It is pertinent to make a distinction between the domestic group, the household and the family particularly when empirical research consists of samples at different stages of the development cycle in terms of size, structure and membership. Development cycle here refers to the concept of small family, expanding family, stable family and contracting family attributed to Meyer Fortes and developed by Jack Goody (1971). Issues such as role allocation amongst resident members, the economic capability of households, and family values, would apply differently to households at various phases in the development cycle, as well as across the generation gap within a single household. Generally in Yoruba households, role allocation, delegation and authority tends to be on the grounds of sex and age, and as a result, the demographic make-up of the each household will have an effect on the level of authority and responsibility that individuals are given, both generally and in respect to cooking and culinary practices because it relates to the availability of alternative personnel in the household.

Social and architectural historians, Mabogunje (1958), Krapf-Askari (1969), Marafatto (1983), observed that the traditional Yoruba family was extended and polygynous, and resident in a family compound, "*agbo-ile*", made up of rooms arranged around a central courtyard, impluvium or hall. They stated the introduction of Christianity led to the break-up of the family into nuclear monogamous units and the agbo-ile lost its importance as a contiguous spatial structure. The implication here is that, where an *agbo-ile* exists, there would be a pooling of resources to sustain the large households, but a nuclear monogamous family would be isolated. Christianity apart, studies suggest that monogamy in West Africa is also practised for economic expediency, as more wives imply more children to join the economic pool (Johnson, 1921; Hill, 1975). A poor man could certainly not afford to feed two wives and their children as a rich one would, and the

economic capability of men would generally tend to improve with age, therefore, a survey of young families will not show a high percentage of polygyny, as a cross-section would. This also implies that a young monogamous household may grow to become a polygynous one later, and even a legally monogamous household could be an informal polygynous one involving extra-marital relationships sometimes in other towns (Toungara 1997, Manuh 1997, Mikell 1997).

In addition, households may still pool resources through the purposive adoption of children of poorer kin (Goody E, 1975) and provide or receive essential funds for the upkeep of other units, which may not be obvious from census data, which tends to focus on residence patterns. In other words, the visible presence of a household does not reflect the boundary of its influence, obligations, economic resource, and activity. A Yoruba woman's obligations to her natal kin continues even after marriage such that it is important that she continues to earn an independent income and she would not have a common budget with her husband even in a nuclear monogamous household, thus indicating a non-unified production pool (Krapf-Askari, 1969, Guyer 1981). The discussion on household structure and the variations of household dynamics is presented in Chapter Three – Yoruba Household and Houseform, dealing with the background to the study area.

Therefore, the complexity of household structure among the Yoruba has to be taken into consideration in the research.

RESEARCH METHODOLOGY

In order to explore the relationship between the sociological concepts of status, solidarity, social mobility and the domestic space, a combination of ethnographic and morphological analyses has been employed.

The ethnographic study looks into the social and cultural aspects of the domestic environment with an awareness of the society at large. Current trends in empirical fieldwork tend to inquire about people's daily practices, and as a result, they study social systems from everyday activity and ordinary practices, as opposed to formal rituals and traditions. The ethnographic survey in this research consists of an interview of seventy-five households structured by an open-ended questionnaire, in conjunction with observations.

The morphological analysis deals with the physical characteristics of built form in terms of configuration, design, and use. Floor plans and layouts of the seventy-five households interviewed were recorded to support the interview/questionnaire surveys. The plans included spaces beyond the cooking space as it was observed that activities relating to the preparation, preservation and eating of food and culinary practice in general impinge on spaces beyond the immediate vicinity of the cooking hearth.

Feedback from the fieldwork suggested that the diversity of the distribution of culinary footprints to other spaces in the house reflected varying degrees of control and restriction of accessibility to goods, foods and spaces. In order to map the 'footprints' of culinary practice within the domestic environment, though they do extend sometimes to other geographical locations beyond the home[1], the tools of the space syntax methodology (Hillier & Hanson, 1984) has been used.

The study will be presented as follows:
In each of the two lifestyle settings, namely shared accommodation households found in orowa and rooming housetypes, and the self-contained accommodation households found in modern housetypes, the study will address each of the following ethnographic and spatial parameters, in order to see how status, solidarity and social mobility are manifested in the appropriation of the domestic space and relationships.

- The configurational properties and characteristics of culinary-related spaces. The intention is to analyse spaces used for culinary-related activity and to map spaces in terms of their position within the system, in relation to co-spatial activities, and also the physical proximity of other spaces.
- The study will look at how roles, activities and objects are distributed in the culinary-related spaces. The intention here is to explore where activities take place, with what objects, and including and excluding whom. This will show how social value is placed on space by virtue of the use made of it. In a sense, this can also suggest the ideology that respondents employ to inform their choices.
- The study also focus on objects and food, and in particular the place and the manner in which items are stored, displayed, preserved, exhibited and used

[1] Peil (1975 pp 86) states that because cooking West-African meals was a time consuming process, many Yoruba families bought meals from traders.

It is expected that the pattern of space use will vary according to the types of spaces available and accessible to each household, the demographic make-up of each household, and the range of possessions they have. Each household dwells in a specific lifestyle context with perceived expectations associated with that lifestyle. This can be expected to have an influence in the manner they present and express themselves, or the impression they want others to have of them through their activities, their possessions and their space.

Selection and justification of respondent households for the study:
Seventy-five households in Ile-Ife, Nigeria, were selected by single-stage conditional random sampling from the three different areas of Ile-Ife, and interviewed by an open-ended questionnaire. A description of the study areas and questionnaire is presented in Chapter Four – Methodology, and in Appendix One.

Ile-Ife is a historic town, and among most of the 22million or so ethnic Yorubas, it is considered as the progenitor town of the Yoruba and Benin people (Johnson, 1926). Ile-Ife has several satellite villages (*abule)*, farmsteads (*oko)*, hamlets *(aba)* and settlements that farm and trade at the periodic markets in the town, as well as a Federal Government University[2] with a residential campus for about 25,000 students, 7000 academic, administrative and technical staff. It is the present headquarters of the Oranmiyan Local Government Council.

Ile-Ife has been chosen because its size, social mix and ethnic homogeneity, as it provides respondent households that share a similar culture and social values, and cut across the socio-economic strata, and have a similar diet and employ similar culinary practices. It is intended that this mixture will account for a wide range in domestic practice in terms of household structure, socio-economic status, level of Westernisation and domestic space layout.

The selected households had the following characteristics:

- They cover a range of housetypes from the traditional to modern examples of domestic space, and consist of examples ranging from spatially dispersed work triangles, or rather, three basic nodes, to houses with modern self-contained kitchens.
- There are variants of household resident patterns, ranging from the extended compound family household, which was dominant before British colonial rule, to the single nuclear family household, which now exists as a result of work migration away

from the hometowns, as well as a third resident pattern whereby multiple non-kin households and tenant families rent rooms (bedsits) and service spaces from a landlord and share communal spaces, circulation and services.

- One residence pattern is designed for communal sharing and the other is designed for self-sufficiency.
- In one group, the extended family, co-reside in a family compound, which consists of a series of houses and shared facilities including wells, service yard, kitchens, toilets and bathrooms in outhouses.
- In another group, the single-family dwellings consist of a series of spaces for living, sleeping, service functions and conveniences, all belonging to a single family, within the same building curtilage.
- The selected households exhibit similarity in their generic diet and cultural background but diversity in their socio-economic standing and degree of Westernization, and consequently, lifestyle. In addition, the sample ranges from those more dependent on traditional culinary implements to those employing technological advancements in the form of electrical appliances in food preparation.

Fieldwork and data collection

The fieldwork was carried out in June/July of 1996. This was during a period of economic depression and tense political climate in Nigeria. For the fieldwork, four architecture students in their fourth year at the Obafemi Awolowo University, Ife were pre-selected by the university lecturers in the Department of Architecture, based on their previous performance in qualitative research assignments and projects in their degree coursework. They were interviewed by the researcher, and employed and trained to assist. It was a requirement that these assistants were fluent in Yoruba language in order to translate the questions to respondents. The assistants consisted of two males and two females, and they were required to interview the respondent in each household, record their responses in the questionnaires, and include any verbatim quotations in English or Yoruba. They were instructed to sketch out the indoor and outdoor spaces on floor plans, with annotations of any observations they made, including photographs and freehand sketches. It was observed by the researcher following feedback on the first few days of fieldwork that some households, particularly in the university staff quarters, felt more comfortable to respond to the female interviewers than the males, perhaps due to a recent spate of household burglaries in the area, for which male interviewers made the respondent households feel

[2] Information obtained from http://www.oauife.edu.ng/administration 18/10/2006

more vulnerable. At the end of each day, the team met for reporting and feedback into the next day's work.

Procedures

In order to measure status, solidarity and social mobility in domestic space it was necessary to define what needed to be measured, what could be measured, how it could be measured and how, as well as why it should address the issues raised. It was not enough to describe a space as clean or dirty or public or private because these concepts were social constructs and culturally understood, and therefore subjective. It was preferable to assess compatibility and incompatibility between activities and between objects in situation of close physical proximity, and the level of accessibility permitted to different individuals, and the storage of food. Hence, the study measured the distribution of the spatial occupation of activities, objects, food and persons in terms of co-presence occupation, exclusion and inclusion as proposed in Fig 1.5 above. Bernstein (1996, 1973, 1971) employed a similar strategy in his study of education systems in which classification and framing was used to assess similarity, difference and variability in classes.

Rapoport (1990 p 12) suggested that activity has to be studied within the context of systems of activity by considering "*who does what, where, when, including or excluding whom (and why)?*"; and that these systems of activities are part of a sequence of systems specific to particular settings and interactions. Hillier and Hanson (1982) showed how spatial configuration can be understood through the patterns of permeability and visibility amongst spaces, and how these spatial properties have an influence on space use. Lawrence (1987, 1982a) demonstrated how spatial nomenclature was at times subjective, and cautioned that it should not always be assumed that a space label implied space use uniformly. He therefore recommended that spatial compatibilities and incompatibilities between activities have to be analysed as part of any comparative study process.

The culinary-related activities that were measured in this study were daily cooking, eating, dishwashing, foodprocessing and ceremonial cooking. The relevant aspects that were measured were the spatial locus of these activities, the participants and their roles in the activity, and the objects that were used in carrying out the activity. Another aspect was measured was the use of space for activity, for display and for storage, which in this context meant where objects and food were placed until they were retrieved for use, and in the case of objects, where they were returned to after use. Through space syntax methodology, the configurational and relational attributes of the cooking space can be

known, in terms of whether a convex space (i.e. a spatial boundary where all areas are mutually visible) is integrated or segregated deep or shallow, in a sequence or terminal etc. with respect to other spaces within the system. What needs to be measured is whether these syntactic properties exhibit any recognition and or indifference to externally defined social positioning in terms of hierarchy and rank; and forms of social networks, that may spatially or transpatially connect a series activities, objects and persons as indicated in the schematic diagram Fig 1. 14 below, which is a development of Fig 1.5 above:

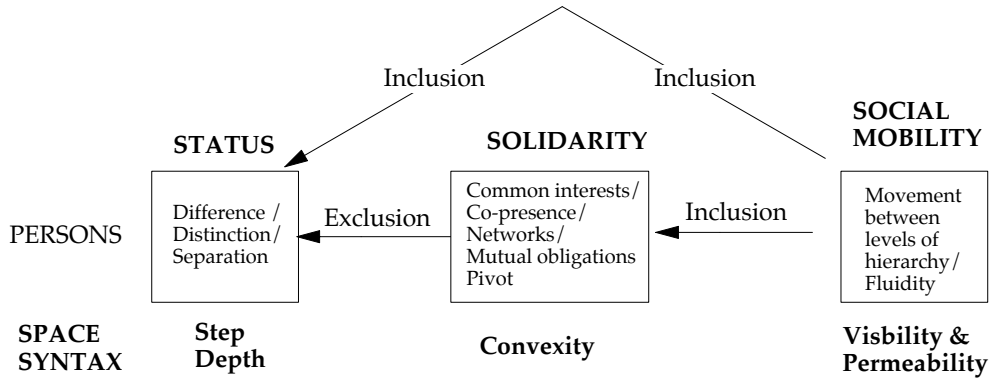


Fig 1.14: Schematic diagram of the relationship between status, solidarity, social mobility, persons and space

Convexity of a space relates to solidarity because joint spatial occupation implies a common spatial condition, though it does not mean equality of experience, for example, a defendant and a judge in a courtroom may face similar climatic conditions but the difference in their individual statuses will determine their spatial experience. Visibility and permeability relates to the integrity of the boundary between convex spaces and whether they allow transmission across the barriers, and therefore relates to fluidity and social mobility. The step depth relates to separation and distinction particularly where subjects are kept apart to maintain their status in order not to blur the differences.

Therefore, the process will be to spatially map and measure culinary-related activities, objects and food storage in terms of what occurs within and across spatial boundaries.

The process of research methods is presented in detail in Chapter Four – Research Methodology.

THE STRUCTURE OF THE THESIS

The thesis is presented in four parts.

Part One consists of the introductory chapters, which are made up of the introduction, the literature review, and the background information on study area. The aim of this section is to define the research questions, establish the context in which the study is being undertaken, and how it fits into the body of existing work.

Chapter One consists of the problem definition, the research questions, the contextual premises under which the problem has been defined, and outlines the procedures that will be employed to address the questions posed.

Chapter Two looks at previous studies of domestic space morphology, identifies how this work relates to that of others, and what it adds to field.

Chapter Three looks at Yoruba culture and traditional ideology from the perspective of the household in order to comprehend how status, solidarity and social mobility are defined in social interactions in the domestic environment. The chapter also introduces the houseforms found in the study area, and social interactions and hegemony implied by the layouts.

Part Two are the methodology and analysis chapters.

Chapter Four explains why a more qualitative approach was undertaken, and clarifies which social statistical techniques have been employed. It also describes which space syntax techniques have been used, what they add to the study, as well as what is implied by their use. This chapter explains how activities, objects and food has been assessed to measure spatial co-present occupation and differences in spatial boundaries.

The Analysis is made up of three chapters that analyse the three distinct housetypes in the study area. Chapter Five analyses the Orowa house, Chapter Six analyses the Rooming house and Chapter Seven analyses the Modern house.

Part Three are discussion chapters.

Chapter Eight presents the results of the analysis and discusses how they address the problems defined in the original research questions.

Chapter Nine addresses the findings as a whole and includes a summary and interpretation of the findings in the larger context of the field, the implication and limitations of the findings and propose areas for future direction and further research.

SUMMARY

This chapter proposed a link between status, solidarity and social mobility with respect to persons and to space, and defines how the kitchen and culinary-related activities and objects will play a part in answering the research questions in terms of the distribution of spatial occupation and boundaries. It also suggests the way in which the concepts and techniques of the space syntax theory can be used to measure this pattern of spatial occupation and boundaries, by tracking the objects, activities, food, and roles of culinary practice in domestic space, in order to ascertain what the measurements reveal about interrelationships.

II Unpacking houseform and culture

The kitchen has the identity of a status space, that is, a gendered status space. It has also been called the place for womenfolk, which means it also has the identity of a gendered solidarity space. In this way, the status that society gives to persons, objects, activities and food can therefore stratify neutral space with a ranking relative to other persons, objects, activities and foods. The purpose of this chapter is to first to review studies that have looked at the relationship between houseform and culture in order to understand how status, solidarity and social mobility in society could be expressed in social encounter and interaction within the domestic environment and in kitchen. The second purpose is to identify the place of this study within the field of domestic space morphology.

HOUSEFORM AND CULTURE

Many ethnography-oriented essays argue that in order to comprehend the relationship between social and cultural experience and the built environment, "culture" has to be "cut down to size" for its components to be studied, analysed and interpreted (Geertz 1973, Lawrence 1987, Rapoport 1990). By definition, 'culture', refers to the generic description of the system of beliefs, customs, values, ideals and way of life that is collectively held by a distinct group of people, which shape their world outlook and behaviour (Abercombie et al. 1984). Culture is also described as the social inheritance or learned behaviour of a group of people, which is internalised, but can be communicated, taught, developed and transmitted to another generation. It is the means by which humans are socialised (Bilton et al.1981,1987).

With respect to the socio-cultural determinants of houseform, Rapoport (1990) cautioned that culture was too abstract a concept and it had to be broken down into more tangible variables such as activities, which can be observed, analysed, interpreted and evaluated. In other words, activity has to be assessed in terms of *"who does what, where, when, including or excluding whom, and why.* In other words, *"activity systems"* are embodied in the cultural systems, and the allocation of roles, the location, setting and timing of activities, are tangible parameters that are more readily accessible to observation, to analysis and to interpretation. With regards to the morphological characteristics of houseform, Lawrence

(1987) argued that social and anthropological notions had a "*tenuous*" relationship with spatial components in terms of how and why houses are designed and used through time and between cultures. By "tenuous", he meant the relationship between the design and use of domestic space was neither mechanistic nor static, but dynamic. He therefore suggested that a range of regulatory factors such as found in symbolism, material culture and environmental psychology would have significant effect on the way these variables interact and should be interpreted. In effect, he argues that it is not possible to analyse spatial forms without information about social activity. However research in architectural spatial morphology (March & Steadman 1971, Hillier& Hanson 1982, Steadman 1983) has shown how space can permit or delimit activity by virtue of its configuration and geometry, which indicates that objectivity in analysing "activities", which Rapoport (1990) defines as the embodiment of culture, can be influenced by spatial variables. It is therefore pertinent to also review studies that "cut houseform down to size".

Indeed, it is insufficient to consider culture only in terms of activity and ignore the effect of age, gender, household structure, household economy, domestic mode of production, material culture, social solidarity, diet and culinary practice on domestic space morphology. Likewise, domestic space morphology needs to be broken down into the constituent elements of spatial configuration and geometry, functional, ergonomic and design variables, in order to comprehend the underlying properties of compatibilities and incompatibilities of spatial relationship and its inherent social logic. Furthermore, the development of domestic science and technology particularly in the area of food, diet and culinary practice determines how activity is carried out and how space is used. It is therefore imperative to assess the studies that cover the following grounds, though not necessarily in the same order:

- Domestic Space Morphology
    - Semantic, syntactic and functional classifications of space
    - Design studies and house styles
    - Diet and culinary practice – foods, processes and the implications on space
    - Infrastructure and Technology and the implications on space
    - Spatial compatibility and incompatibility of activities.
- Domestic Space Sociology
    - History and status, solidarity and social mobility in society

- Household economy and the domestic mode of production
- Material culture – how cultural value is invested in tangible objects

The above issues are discussed across two sections. The first section reviews issues, approaches and methodologies for analysis, synthesis and interpretation of houseform and culture in general in order to introduce to the tools, necessary for understanding the Yoruba sample. These consist of works by Roderick Lawrence into domestic space classification, Bill Hillier and Julienne Hanson and the Space Syntax Theory, ergonomic and anthropometric studies in the use of space. This is followed by a review of the relationship between status, solidarity, social mobility and space.

The next section describes ideological aspects of Yoruba houseform and culture in order to place the study in its social context. It includes a description of the housetype being studied and aspects of the lifestyles of the respondent households in terms of their diet and culinary practice. The viewpoint is that diet and culinary practice is indicative of other areas of domestic practice such as what and why technology is adopted and developed in the way it is, why space is used in particular ways, why goods are acquired, how roles are allocated and how personal relationships and encounter are negotiated.

Space as a physical and social entity

'Space' is an entity that has continued to interest sociologists and morphologists alike, and one of the main challenges has been to establish the markers that characterise space, and distinguish it from other environments that engender interactions and experience, both real and virtual. De Certeau (1984 p 117) for instance made the distinction between place and space in that 'place' is a static phenomenon that occupies a position, and excludes another from occupying the same position, whilst 'space' is constituted by movement and time. As such, space is embodied by a series of places that enables the collision of interaction and experience in time, and which has to be inhabited to be experienced. Space also has to be delimited by boundaries to give it an identity, whether of outside and inside, and this makes it a catalyst for social interaction and a container for social production and reproduction (Bachelard, 1958 *Translated Jolas 1964*; Hillier & Hanson, 1984, Hillier, 1996; Rendell, 2000).

Psarra (2003) made the distinction between shape and space, the former being perceived instantly, and the latter being experienced through movement and time. She argues that the steady revelation of visual fields as one moves make spatial perception a dynamic experience, everyone encountered in the domestic environment will therefore have a different perspective and interaction. Therefore, there is going to be a different interaction between person and person, person and activity, person and objects and person and space. Activity to space interaction takes place when there is movement between the three basic nodes of heat, water and storage, as in Fig 1.10 p30 above; and object to space to activity interaction takes place when objects are retrieved from the space of storage to the space of use, and returned to storage or discarded after use.

It can be derived thus that space is characterised by boundary, movement and occupation. There is a sense in which spatial boundaries serve to reinforce differentiation, hence status; movement between spaces indicates fluidity and permeability, hence mobility; and the occupation of space implies an equivalence of spatial experience and conditions, hence solidarity. The following reviews will look at studies of domestic space morphology that have looked at ways of describing and interpreting spatial boundaries, movement and occupation, with a view to bringing to the fore issues that will guide and equip this study to answer the research questions on how status, solidarity and social mobility are manifested in domestic space via culinary related activities, objects and food.

DOMESTIC SPACE MORPHOLOGY

There are two things generally used to differentiate one space from another: (a) what it is called, and (b) what it is used for, and for that reason, spaces have labels. A label gives space an identity, which immediately connotes what it should be used for, what it may be used for, and what it should not be used for. A label can also imply what objects one can expect to find there. The identity of a space gives it a status in relation to other labels. What a label however cannot do is tell all what a space is actually used for. On the one hand, the label can obscure the range of activities that actually take place there, and on the other hand, the multi-functionality of spaces can actually result in an ambiguity of space labels.

There are three broad approaches employed to dealing with domestic space morphology. The first approach uses socio-cultural and semantic aspects of space to classify the physical form, and the second approach uses the spatial configuration and physical form to explore the social interaction that takes place in the home. The third approach looks at the actual activities that take place in order the understand the way space is used. The first approach, called the semantic, speaks of space in social terms, and the second approach called the morphological, speaks of space in physical terms, and the third approach called the functional speaks in terms of activities.

The Semantic Approach

The semantic approach was employed by Lawrence (1982a, 1987), in the comparative study of English and Australian houses and kitchens. The studies demonstrated that it was possible to observe and understand how social and cultural variables can be differentially manifested in house form by using a combination of ethnographic, historical and morphological data. From the outset, the study divested itself of the limitations of spatial nomenclature and stressed that to label a space "kitchen" did not mean that comparable facilities were being analysed cross-culturally because it was usual to find other domestic activities being considered compatible or incompatible with culinary activities, and they differ in degree from one culture to another. For instance, dishwashing, laundering and bathing are water based cleansing activities that differ in the level of compatibility with food preparation, cooking and eating. From the ethnographic data, spaces were grouped into bi-polar categories of front/back, male/female, clean/dirty, symbolic/secular and public/private such that male corresponded to front, clean, symbolic and public, and the converse is that female corresponded to back, dirty, secular and private (See Fig 2.1 below).

Lawrence (1987) categorised English houses as shown in Fig 2.1

Front Back	=	Symbolic Secular	=	Parlour Kitchen	=	Space reserved for special occasions Space for daily cooking and eating combined with laundering and bathing

And Australian houses as

Front Back	=	Symbolic Secular	=	Parlour Kitchen (not including laundering activities)

Figure 2.1: Chart of domestic space organisation in Australia and England. Source: Lawrence (1987 p 107)

Chapman (2004) also used the public/private divide to describe the separate spheres inhabited by men and women in Western patriarchal society dating back to medieval times. The front/back divide is a throwback to Goffman's (1959) frontstage/backstage exposition, which sees social life as a theatre of the symbiosis of preparation and performance. Traditionally, in the domestic space, the kitchen would be a backstage space, because that is where food is cleaned, prepared and made up in order to present it to others. Goffman (1959 p 125) actually likened food preparation to the cleansing, clothing and making up of the human body, whereby filth and nakedness is rectified and transformed prior to presentation. However, in more middle class homes, the kitchen has moved to a frontstage position such that there are now open-plan living/dining/kitchen area, where the host is able to display a high level of competence in food preparation and cooking; and cooking becomes part of the entertainment of guests.

There are instances where there would be difficulty in employing the social system of classification based on labels for domestic space. Firstly, in situations where a space is used for a variety of activities, the function indicated by the space label would tend to become the overriding parameter for classification, yet this can then limit the wealth of embodied social information that can be extracted from the analysis of the space. For example, Hanson (1998) observed that bedrooms in English middle class houses doubled up as study rooms, dens, workshops and playrooms, to be used during the day and not just at night for sleeping. Likewise, Giddens (1984) argued that the zoning of time and space in relation to routinized social practices produced an intersection of activity and co-presence, which in turn produced variability in spatial encounter and occupation. Therefore, the zoning of spaces according to space labels and designated (or dominant) use only masks the more interesting aspects of variability of encounter and occupation.

Secondly, there are times where the boundaries of classification are not as clear-cut, for example in using concepts such as clean/dirty or public/private. Even Lawrence (1987) stated that though it was acceptable to consider eating as a clean activity, yet eating in a parlour could be a messy (if not dirty) act with respect to the English sample and eating in the kitchen would be in a dirty space with respect to the Australian sample. This suggests that it could be the simultaneous occurrence of activities in the same space (co-presence in space synchrony of activity) that produces the incompatibility, such as "eating in bed", which although can be viewed as a luxury of being waited on by another,

could also be seen as an activity that should only be permitted for the infirm, and a potential for attracting ants and pests into the bedroom. Certainly, some respondents expressed the third viewpoint during the fieldwork on this present study on kitchens in Ile-Ife. This means that the criterion for categorisation has to consider the status connotation of the activity and of the space in interaction, and not only as separate entities.

Given these ambiguities in semantic classification, it is intended to substitute public/private categories with the level of accessibility to the kitchen for different individuals, and assess spatial access and occupation in terms of whether a space has collective or exclusive accessibility. Likewise, rather than categorising the houses into clean and dirty spaces, the study will investigate compatibility and incompatibilities between culinary-related activities and other activities in terms of spatial isolation, and spatial co-presence or proximity between food preparation activities and laundry, eating, food processing, ceremonial cooking and dishwashing activities. In this context, spatial permeability and visibility between the spaces these activities take place can give an indication of the level of compatibility and incompatibility between the activities. Compatibility suggests spatial co-presence and in this sense, solidarity, whereas, incompatibility suggests spatial separation, hence status. Where particular types of activities and objects traverse boundaries from one respondent household to the other, it becomes possible to assess mobility.

The Morphological Approach

Physical boundaries make it possible to differentiate the indoors from the outdoors, a courtyard from a veranda, a frontyard from a backyard, and are arguably status-bearing elements. For instance, Ozaki & Rees Lewis (2006) and Seo (2005) demonstrated how boundaries were employed to stratify Japanese and Korean domestic spaces into status categories respectively. Ozaki & Lewis (2006) also argued that the physical articulation of space in Japanese homes corresponded to social boundaries, particularly in the inside/outside divide, such that the ambiguity of transition spaces always gives a psychological angst. Lawrence (1990) defined four types of boundaries, namely physical (barriers), symbolic (cues and conventions), judicial (legal possession) and administrative (management and control). Each type of boundary imposed a distinct type of restriction on space, objects and activities that can be permitted to move from one domain to the

other. This indicates, on the one hand, that spatial domains embody a variety of meaning and on the other, that spatial boundaries are qualified by their integrity or ambiguity.

Lawrence (1990) applied the concept of boundaries to the transition between the home and the community, and derived the existence of collective space (i.e. community space / no-man's land). The existence of a collective *"no-man's land"* neutral space between the public external domain and the private internal space suggests that domestic space may not strictly fall into the binary categories that Lawrence (1982a, 1987) had previously stated in relation to the Australian and English houses. In other words, the boundary between the two extremes may not be quite distinct but more gradual and consisting of several steps of categorisation depending on the rules of accessibility and control being applied to different people, activities, objects and spaces. The different levels of accessibility into spaces also implies that there are different levels of occupation and use of space, particularly in multiple occupancy houses where some spaces will be accessible to individual tenants and their guests (non-resident persons) but not to fellow residents, yet other spaces are accessible to all residents, but not their guests. Essentially, this gives spaces that straddle the public/private, collective/exclusive divide, with the in-between categories. It follows therefore that transitional or neutral categories could be applicable to the other binary classifications of clean/dirty, front/back, male/female, symbolic/secular used in domestic space. For example, the categories could be clean/messy or untidy/dirty, front/middle/back, male/neutral/female, and sacred/sentimental/ mundane/secular respectively.

In the domestic space, the obvious boundaries are walls and doors (spatial), but the not so obvious ones are the rules, cues and conventions, which are known to particular individuals or the "team staging the routine", to use another Goffman (1959) terminology. If boundaries are applicable to the physical components of space in houses, by extension, the boundaries of activities can indicate how space is occupied and used. Without the boundaries, space, objects and activities will be otherwise continuous and impinge on one another. In this sense, it is possible to assess the spatial distance which an object or activity can be allowed to move from a designated place, and this can become a measure of the proximity and integrity of the barrier placed on that object or activity to represent the level of control or restriction applied to it. However, it may not always be feasible to achieve

this restriction through spatial elements without the introduction of cues and conventions to ensure such restrictions to accessibility are enforced or penalised if contravened.

For this research, the intention is to apply the concept of boundaries to explore the movement of culinary-related activities, culinary-related objects, and food to other spaces beyond cooking space. With respect to persons, by finding out how roles are allocated to individuals, it is possible to explore if there is the traversing of traditionally held age and gender role boundaries.

As boundaries make it possible to delineate realms of spatial occupation and the permeability of access and movement between spaces, it is necessary to review research that can describe and interpret the patterns of movement, occupation and boundaries between spaces. For that reason, the space syntax theory and methodology has been chosen as one capable of equipping the study to dealing with the research questions of how status, solidarity and social mobility are manifested in domestic space.

The Space Syntax Theory

What the space syntax theory brought to the field of architectural morphology was the idea that in the development of the built form, space, was itself subject to laws that were intrinsically spatial. Spatial laws in this sense were those rules that explained the fundamental mechanism of form and morphology, in terms of the way space is put together and used. The argument was that spatial relationships and in that sense, configuration, were based on the permeability and visibility of one space to another and these principles also related to social variables. In other words, the pattern of accessibility guided, permitted or delimited the range of forms that could be generated, manipulated and used in an otherwise random set of possibilities of spatial relationships.

Until this time, space had mainly been viewed as a product of social, cultural and lifestyle factors and as such, was subject to the rules of these variables. As space was not studied as a discrete entity, without the presence of these intervening variables, research into architectural morphology was hampered by the generic limitations of sociology and anthropology. As the existing tools for research, analysis and interpretation belonged to the social science disciplines, architectural researchers like Amos Rapoport, Christopher

Alexander and Roderick Lawrence opted for inter-disciplinary studies with archaeologists, sociologists and historians. Their aim was to embed the built environment into the existing network of studies into society. The downside was that the attributes generated by these studies could not be employed to analyse space as a purely physical entity without knowledge of its social context. Furthermore, most phenomena were interpreted in social terms such as public, private, collective, symbolic etc., which are difficult to express architecturally. There was also a drawback in that space could not have been subjected to rigorous scrutiny, as it was viewed as an end product, and not an active agent in the generation of the built environment. Consequently, the idea that space could be fundamental to the constitution, mechanism and reproduction of society suggested that a new theory was being generated. Certainly, Hillier (1996) believes that architecture needed such spatial theoretical knowledge in order to be considered as one of the mature academic subjects like the arts, humanities, philosophy, literature and poetry, or in other words, be acknowledged as an intellectual creative discipline. Furthermore, because the product of architecture has now been seen to have social consequences, it is becoming increasingly necessary to generate tools to measure the practitioner's accountability for it.

Space syntax avoids the limitations of approaches that classify activity according to space labels (as Lawrence above), by interpreting space according to its configuration and possibilities of use based on its relationship with other spaces. The space syntax theory purports that space can be described and studied in and of itself, and that the generic characteristics would emerge from that enquiry. As in natural language where syntax is defined as a set of rules for constructing sentences, the theory sets out the elementary or fundamental structure of spatial communication in order to develop the organising principles of spatial patterns. The space syntax theory purports that the configurational relationships between spaces embody social meaning, and these spatial patterns relate to access between spaces and occupation of space.

Starting from a single cell with an entrance, the theory demonstrated how larger spatial patterns could be generated using rules imposed on the system at the local level. The fundamental structures were discovered when Hillier and Hanson (1984) tried to make sense of a series of small settlements in France. They proposed that a series of seemingly random-shaped open spaces had an underlying pattern of being constituted by entrances to houses, and they named this effect the 'beady-ring' structure. The theory went on to

make the distinction that larger systems are not necessarily an agglomeration of smaller ones, but the synchrony of several systems that conform to a generic order in order to work. The theory also states that there is a relationship between these generative rules and social forces that gives insight into the spatial perspective of how social structures and relationships are conceived, produced and reproduced.

In order to ascertain and interpret the syntax (generative rules) of spatial configuration, two concepts of representation of permeability and visibility were introduced, namely, axiality and convexity. Axiality represents a line of vision and possibility of access, whilst convexity represents a space of occupation and field of vision (Fig 2.2). In elementary terms, people occupy space convexly and move from one space to another axially. Space syntax argues that it is possible to objectively assess the differences and similarities between the generated patterns in spatial configuration using these criteria, and these characteristics in themselves can represent and embody different social purposes.

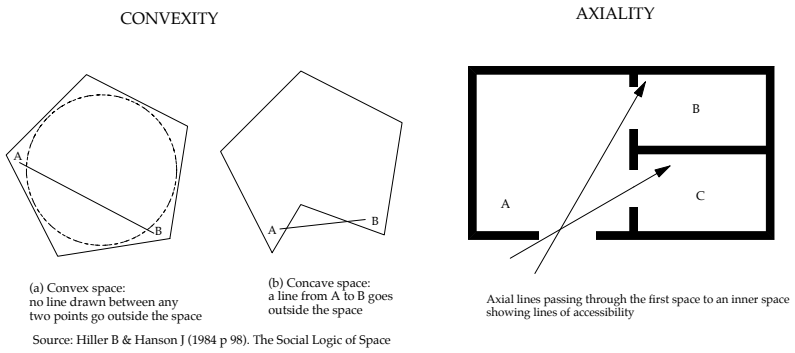
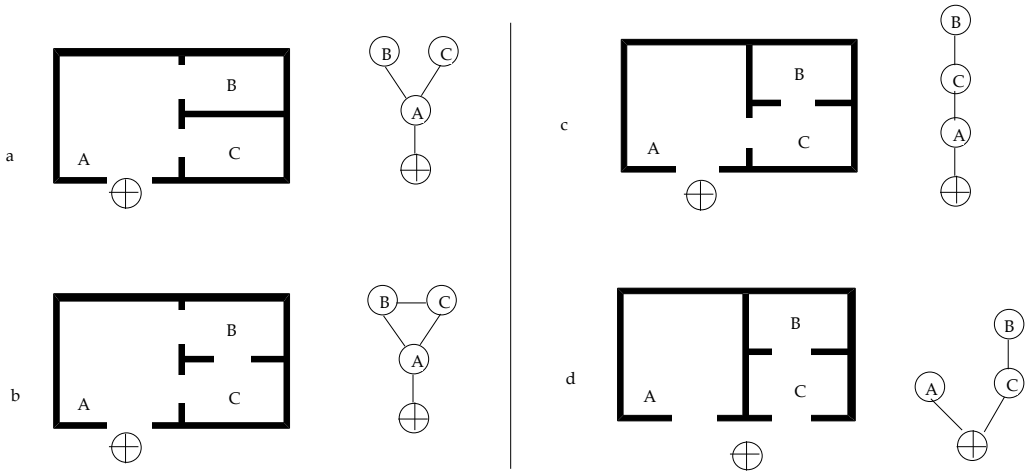


Figure 2.2: Convex spaces and Axial lines – Source: Hillier B & Hanson J (1984). Basic concepts of spatial analysis.

When applying these analytical tools to domestic space, the study showed that the mechanism of interior spatial relationships differed in almost reversal fashion to that of exterior relationships that existed in settlement layouts. Though axiality and convexity exists in all spatial situations, settlements tend to axially centred, and houses, convexly centred. Unlike in external space where neither strangers nor inhabitants can be identified, the interior of buildings categorically requires this distinction in order to define and control permeability and encounter between people. Consequently, a new form of analysis

known as the justified access graph was introduced to assess the permeability within the interior spaces.



Basic configurational relationships.
Source: Hillier B & Hanson J(1984) - The social logic of space

Fig 2.3: Basic configurational relationships

The justified access graph for interior premises is constructed by first representing the convex spaces with a circle, the connection with a line and the carrier space (usually the outside) as a circle with a cross. From the graph, the sequence of accessibility can be read, and can be interpreted as either transitional or continuous (i.e. leading to another space) or a dead-end. Fig 1.7 above illustrates this situation. The four plans have similar geometric and adjacency structure, but different accessibility graphs.

Two generic types of graphs emerge, namely the tree graph and the ring graph. The tree graph *[(a) above*] consists of spaces branching off a main access space and terminating with no alternative means of exit except through the original access. The generated pattern resembles a tree with trunk and branches and a configuration that consists of several tree structures is colloquially referred to as "*bushy"*. In contrast, the ring graph shows an alternative means of exit or access to a space and so, resembles a ring in its pattern [*(b) above]*. Hillier (1996) summarised that every space in a configuration would fall under one of four types of categories based on their connections as follows:

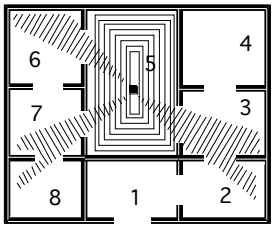
Type-A spaces are terminal spaces and in Houses a, c and d above, space "B" is a terminal space in that it has no other way out other than the entrance. Type-B spaces are transitional, forming part of a sequence leading to other spaces, such as spaces "A", "C" in House c above. Type-C spaces are part of ring sequence, e.g. spaces "A, B and C" in House b above. Type-D spaces lie on two or more rings. These categories reflect the possible uses a space can be put to depending on the desired level of accessibility.

From the graph of any given configuration, it is possible to assess the following spatial properties: symmetry and asymmetry, depth, distributedness and non-distributedness, and connectivity and control. Symmetry occurs when spaces bear identical reciprocal relationships to each other, and no space unilaterally controls access to any other space. In contrast, asymmetry occurs when a particular space must be traversed in order to gain access to a third space, in which case, the second space is a controlling space. The inequality between spaces also indicates that spaces are differentially closer or further to each other, indicating depth from a particular space. Distributedness assesses if there is a ring, indicating alternative routes and Non-distributedness, a single sequence of spaces. Connectivity measures how many spaces are linked to any particular space and Control measures how well a particular space permits or restricts accessibility to other spaces within the overall system.

The justified graph (j-graph for short) differs from the accessibility graph that has been used by March and Steadman (1971) in the sense that it does not only indicate adjacency between spaces, but maps (justifies) the permeability from a particular space, thereby analysing depth. Adjacency is a pre-condition for accessibility but permeability narrows down the multiplicity of possibilities that geometric adjacency can produce, thereby reflecting the reality of space use. A graph can therefore read as either shallow or deep depending on the total number of steps of all convex spaces from a particular space. Theoretically, the shallowest graph possible will be where every space in the system is connected to the one carrier space or one step-depth away, and the deepest will be if all spaces were arranged in a single continuous sequence as in House c in Fig 1.7 above, whereby every step increases the overall depth from the carrier space (Hanson 1998). From the j-graph, the relative asymmetry of the system can then be calculated to ascertain how integrated or segregated a particular space is within the overall configuration.

The space syntax theory therefore demonstrates how the configurational properties of space can be used to ascertain and interpret embodied social information, either in the differential ways inhabitants and visitors occupy space or in the way inhabitants appropriate and allocate space for different uses, by seeing which activities or labels are associated syntactically with spaces that have different integration values.

Hillier (1996) claims that in order to have an understanding, or intelligibility of spatial relationships, there needs to be a correlation between the space one can see and the space one can move to, i.e. between spatial visibility and permeability which is perhaps the reason why a maze confuses the mover, because there may not always be accessibility in spaces visible from a particular spot. Visibility and permeability are measured by isovists. Isovists are two-dimensional representations of visual fields, and they measure the range of visibility from particular points in space to all areas within a space and beyond.



Source: Adapted from
1. (1984) Hillier B and Hanson J.*The Social Logic of Space.* Cambridge: Cambridge University Press p 148
2. (1998) Hanson J. *Decoding Homes and Houses.* Cambridge: Cambridge University Press. p 43

Figure 2.4: Isovists from a convex space: Source – Hanson J (1998)

When the isovist is used to map areas of permeable proximity, then that those spaces need to adjoin one another. When it is used to map areas of visual proximity, such as through a glazed screen or window, those spaces need to be adjacent to but not necessarily adjoin one another. However, the isovist may be limited in certain areas of adjacency, such as where there is a barrier like a fence or wall, through which there is neither accessibility nor transparency across the barrier. In these instances, there could be other forms of proximity that are perceptible to the senses besides sight and touch, such as auditory and olfactory, for which the barriers may be of little or no effect in containing all aspects of an activity

within its bounded space. It is therefore the argument of this thesis that isovists should be upgraded to a sensory proximity map in order to analyse adjoining and adjacent spaces for this also encompasses the requirements of the visual and permeable isovists.

Lawrence heavily (1990) criticizes the space syntax theory of being incapable of accounting for ethnographic variety in domestic space and overlooking developments in the social sciences especially Irwin Altman and Dalwin Taylor's social penetration theory and privacy regulation. Social penetration theory states that there is a linear progression of intimacy due to self-disclosure, that as people reveal more of themselves, they move closer to one another. People, the theory says, are like onions, and they have to be peeled back to reveal their multi-layered personality. In application to space, the theory implies that it is necessary to gain access into the deeper spaces in order to understand the global spatial structure. Space syntax studies however argue that it is possible to perceive the definitive characteristics of a configuration from the distribution of integration and segregation of spaces, which may not necessarily lie in the deepest part of the structure. Every convex space is included in the configuration analysis and the emergent genotype is derived from the relative position of each space in the overall system.

Privacy regulation argues that people control access to personal space by means of rules, regulations and norms besides physical space and boundaries, and by extension argues for territoriality. In fact, Hillier and Hanson (1984) oppose territoriality in theory and in practice, as being insupportable for the diversity in spatial configuration that exists because territoriality argues that such behaviour is biologically determined. The strategic stance of space syntax analysis is to examine the floor plans and then relate any findings to space labels and use. Unlike Alexander et al (1977), where bold statements called "a pattern language" are already given on what constitutes good spatial environments, space syntax provides the tools to think of those ideas in the first place (Hillier 1996) and then communicate them.

The space syntax tools will be used in this present study in ascertaining the inequality genotypes of the houses, the position of the kitchen in the rank order of the integration values, mapping out the justified graph to ascertain relative depth, distributedness and non-distributedness of the kitchen, culinary activities and culinary objects all around the

domestic space. A detailed account of the procedures employed is given in Chapter Four-Methodology.

The Functional Approach

Spaces tend to be categorised according to functional characteristics into living, sleeping, circulation and service spaces. This gives a generic basis for describing and comparing housetypes. Hanson (1984, 1998) coined the phrase "categoric differentiation" to represent the level of distinction between spaces. Thus, where distinct zones exist, then there is strong categoric differentiation within the housetype and where the distinction is blurred and spaces are subjected to mixed uses, then there is weak categoric differentiation. As a result, where the house plan dictates a space label, such as in bedrooms, study, dining rooms, there is strong categoric differentiation. Conversely, where rooms could be used for allocated to any use as required and such use would not significantly impinge on the equilibrium of relationship or access to other related spaces, there is weak categoric differentiation. It is stated above that space labels do not ultimately determine all the activities that may be permitted within the boundaries of a space, though the dominant use may have an effect on what other activities and storage may be permitted therein.

Culinary activities are part of the overall system of domestic functions in the home, and may or may not be spatially compatible with others. Culinary practice is composed of several sub-activities dealing with food (purchase, preservation, storage, processing, preparation), utensil/implements (storage, retrieval, display, use, maintenance, cleaning), eating (protocol, equipment), waste disposal, infrastructural facilities (fuel, water, electricity), dishwashing and ceremonial cooking. Raw unprocessed materials and ingredients move around in the system towards a destination for processing and transformation, and the finished product passed is out for eating. Food preparation is also constituted of roles, sequencing of activities and the timing and scheduling of processes.

The places occupied by the three basic nodes and the location for storage of utensils and food may not necessarily be spatially self-contained as the activities for food preparation, processing and transformation may traverse several convex spaces and as such extend the notional boundaries of the kitchen. For instance in Fig 2.5 below (*which is an actual example from the present study*), which shows the footprint of a typical two bedroom with study

modern house and self-contained kitchen, the outdoor space just outside the kitchen is used for some food preparation activities and foodprocessing, and the storage of food is found in places as far away from the kitchen as the main bedroom. These different circulation patterns are represented as follows: the green line tracks the circulation between the kitchen and outdoor spaces, such as from the car to the kitchen (from shopping to storage), and from the kitchen to the backyard; The blue line tracks the circulation between the kitchen and other indoor spaces, such as from the to the dining and living room (for eating) and bedrooms (for storage); and the red line marks the kitchen work triangle.

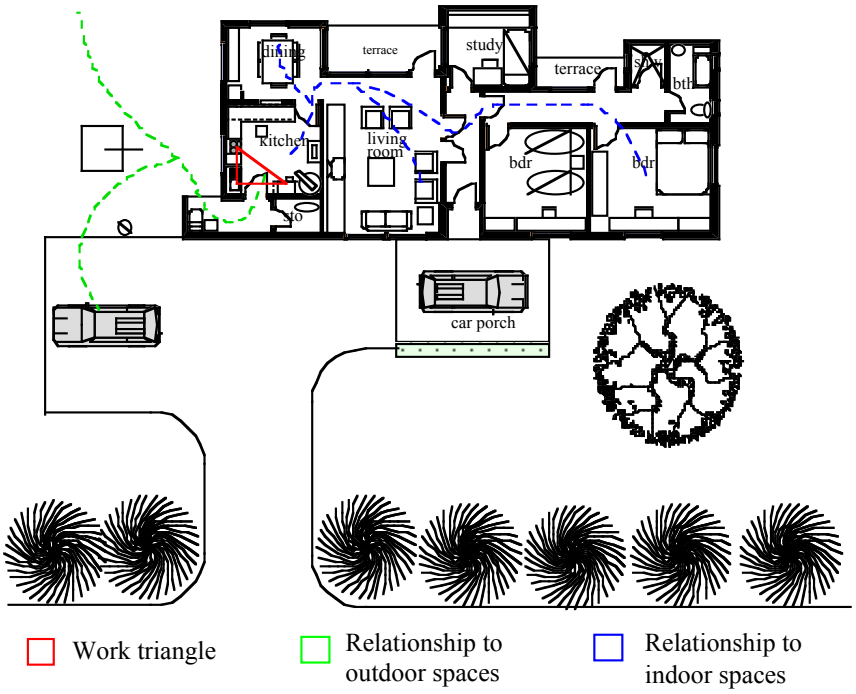


Fig 2.5 – Tracking the various circulation patterns in the domestic space.

This shows that how culinary related activity can take place in several convex spaces beyond the spaces designated for the cooking stove. It is therefore the argument of this thesis that in order to analyse the kitchen and culinary practice, it is necessary to analyse all internal and external spaces that are used for any culinary related activity or storage, and that will include the source of water, heat, food storage, utensil storage, including the

places where all cooking, food preparation activities, dishwashing and eating occur. For this research, all such spaces will be termed "culinary-mapped spaces". The merit in utilising this form of analysis is that it will be possible to objectively compare a wide range of households irrespective of their houseform, household structure, and socio-economic status and lifestyle, because the above culinary related variables being compared are common to most of the respondent households.

In his formulation of 'structuration theory', and based on Hägestrand's time-geography theory, Giddens (1984) noted that the physical constraints that limit human activity allowed the intersection of activity, space and time whereby infinite space had to be zoned to finite regions in order to generate encounter and routine. He went on to suggest that there would be no chaos in social space as long as there is an awareness of the social rules that are fundamental in the production and reproduction of social encounter. The multiplicity of possible interaction of persons, objects, activities, food and spaces gives a range of interfaces for status to be inscribed in space. Besides the use of a space for a designated function as indicated by its label, several genres of activities can take place in one space, and one genre of activity can be dispersed over many spaces, and it is in this context that the functioning of the domestic space has to be considered.

To sum up, the study of the spatial aspects of domestic space will address the following matters: a) the classification of domestic space based on degrees of collective and exclusive accessibility; b) the spatial distribution cooking, food processing, ceremonial cooking, eating, dishwashing, and the storage of food and utensils in domestic space particularly with respect to the compatibility and incompatibility of these activities taking place within the same spatial boundary or being perceptible from a nearby space.; c) transition categories, that is, the in-between spaces; d) the analysis of boundaries to study the movement of object and activities on spaces within the home; e) the analysis of culinary-mapped convex spaces in terms of step depth, connectivity and sensory proximity to all other spaces in the system.

The next step is to determine how the above spatial concepts are related to sociological concepts of status, solidarity and social mobility.

DOMESTIC SPACE SOCIOLOGY

The purpose of this section is to review studies that have made a link between the concepts of status, solidarity and social mobility that are introduced in Chapter One and how they are manifested in space. Adjunct to this are studies that posit a relationship between status, solidarity and social mobility and activity, objects and food. The main question to be asked is whether these studies consider that these sociological concepts can be manifested in the way space is used i.e. in terms of occupation, or, in the way space is configured i.e. in terms of the way it relates to other spaces in the system. In terms of occupation, it is important to ascertain whether theorists believe that objects, activities and persons that occupy a space can reflect or even determine the status of that space. Likewise, with regards to space configuration, the questions will be whether the boundaries and connectivity of a space in comparison to other spaces could be indicative of the status, solidarity and social mobility i.e. fluidity of the space to other classes of the space in use.

Some studies suggest that it is necessary to define identity, in order to understand how individuals determine their status within their class structure, what groups they consider to have solidarity with, and how they determine whether they have improved their status within that structure (Haralambos and Holborn 2004, Crompton 1993). Identity is continuously being redefined in modern society, and it has ranged from a sense of oneself as an individual to solidarity with a movement or concept beyond oneself. Generically, identity can determine the status of a person in a society in terms of what privileges they can have access to or not, as well as an indication of what kind of interaction can be considered appropriate or inappropriate with other people (Delphy, 2002). According to Haralambos and Holborn, 2004, it is associated with culture and it is one of the fundamental bases for social interaction.

Status and space

Status, like identity, has many facets, but unlike identity, has to be relative to other positions. Status has to be acknowledged by others as being a form of distinction (Bourdieu, 1984, 1979; Bilton et al, 1987). Status is multi-dimensional such that an individual could belong to more than one status group, and it is possible to find inconsistencies in the prestige or lack thereof of belong to more than one of these categories (Abercombie et al 1984; Haralambos & Holborn, 2004).

When a child is born, they acquire a status. Their forename will differentiate them from every other person in their everyday life. Their surname, particularly in a patrilineal society, will give them the status of inheritance, because it means they are legal heirs of the person whose surname they bear. In a culture where only males can inherit land or own property for instance, then this will tends to influence the different ways males and females are regarded in the home, and in that domestic environment, status would be derived from age and sex.

With respect to the workplace, Vischer (2005), boldly asserts that there is a link between space and status, particularly where certain workplace structures associate the kind of office space people occupy with their status in the organisation hierarchy, for instance, corner offices for the executives and open plan offices for the support staff. Vischer's (2005 p52) study employed the man-environment paradigm and argued that a form of social territoriality took place in the workplace, such that though animal territoriality was rooted in survival, human territoriality was related to status recognition and self-image. The study argued that if the structure of an organisation allowed for permanent workstations as opposed to hot-desking, individuals had clarity about their position or status as employees, termed a socio-spatial contract between employer and employee. They also understood their position in relation to other employees and compared each other's workstations, and marked down their territory with personal effects. This occupation and ownership of territory turned 'space' into 'place' and enabled individuals and groups of people to impose degrees of control over space, in a form of Altman and Taylor's privacy regulation. She argued that this also made it possible for them to assess whether or not they were making progress within the organisation, because allocated space constrained behaviour and had a status, but ambiguous space was more difficult to define and stratify. Vischer (2005) defined degrees of territoriality in the workspace that related to control over accessibility, the visual opacity or permeability of the boundary, whereby as one moved from the position of primary territory towards secondary and tertiary territory, there was an increasing accessibility to a wider range of users. Essentially, this study concluded that space was a tool that could be used to symbolise status, express solidarity and measure social mobility in the workplace.

With regards to the domestic space, the notion of degrees of accessibility and control over space is applicable for a wide range of domestic settings from self-contained

accommodation where the restrictions are applied to members of the household, to multiple occupancy residences such as flats, where, restrictions are applied to co-residents and visitors to varying degrees. Where the domestic environment differs from the workplace is that status in the home is more often than not related to a bio-cultural characteristic such as age (or birth order) and sex, more than a person's aptitude or efficiency at performing their duties as in the workplace. Depending on an individual's public profile (e.g. celebrities and political leaders), their status may increase as they move away from the home environment, because that status is publicly acknowledged, whereas at home, they are treated just as any other family member.

With regards to the way space is occupied by persons, used for activities, and for the storage of objects, material culture studies argue that supposedly inanimate objects communicate ideals, aspirations and values held by individuals, by virtue of their possession, and particularly in the manner they are displayed, preserved, stored or used, and who is allowed to use them. Csikzentmihalyi and Rochberg-Halton (1981), Douglas (1991), Douglas and Isherwood (1979) emphasized the significance of objects in the domestic environment and the value placed on them by their owners. Goods are held to be cherished by virtue of either a monetary value, symbolic value and or a sentimental value, and the items and reasons for their attributed value may differ from one individual or household to another. In a Yoruba household, items relating to landmark events such birth, death and marriage will be of high symbolic value, and this will include textiles, jewellery and ornaments. Other possessions can also acquire value if their monetary value symbolises a status higher to a person's neighbours, e.g. electronic goods, mechanical appliances and vehicles. However, the Csikzentmihalyi/ Rochberg-Halton's study fell short of identifying spatial correlations to these cherished objects, and perhaps more significantly, was unable to provide information about of the spatial characteristics of the spaces in which they were found.

The identity of the kitchen as a gendered space is evident in several ethnographic studies (Rendell, 2000; Grosz 2000), and it is common in most cultures for food preparation and culinary activities to be delegated to people of lower rank in households, and who are most likely to be female (Ardener, 2000; Massey 2000; Rendell 2000). These studies argue that because gender determined status and power relations in society as well as solidarity identity, such distinctions would be manifested in the way space was designed and used.

For example, in Victorian society where the ladies' main domain was the private domestic environment, and men occupied the public space and the city, it was common to correlate women's status to particular environments, such as theatres and parks for ladies, and follies and brothels for fallen women.

In African settings, where a class structure does not exist in precisely the same terms as in Euro-American societies (Goody, 1976, 1973), women had always been exposed to an environment beyond the home and would only be excluded in non-secular gatherings involving male fraternities and sacred rituals. Women had always undertaken income-generating activities alongside child-rearing and housekeeping, and the culture recognised this arrangement as being crucial for ensuring the welfare of children. Indeed, one of the criticisms levelled against the British Colonial administration in Nigeria as noted by Oyewumi (2000) and Ekong (1984) was their disregard for the prominence of Yoruba women in public and political office in the pre-colonial nation, and how their (colonialists') Victorian ideals of Christian monogamy and chivalry resulted in undermining the stability of the family, as there was no one to oversee women and children's interests in the new colonial society. Torre (2000) actually described the African marketplace as the public space for women, for socialising and networking. Essentially, a woman could be of high political standing in the community, be economically self-sufficient, but may have to assume a gendered status at home.

Rendell (2000 pp 102-103) therefore recommended that a study of a gendered space like the kitchen should "address how gender relations are manifested in space and how spatial relations manifest in constructions of gender". Chapman (2004) however cautioned on the use of the term "gender roles" in relation to domestic life, as it connotes fixed, inflexible and non-negotiable relationships, that are determined by external social and cultural factors, which could mask the individual circumstances that prompt each household to negotiate domestic activities and relations in a manner suitable to them. As a result, he suggested the term "domestic practices" to address this issue.

According to Oakley (1979), if the household is used as a unit of analysis of social class, then the occupation of the household head should indicate the status of the family. Goldthorpe (1980) defined the head as the family member who has the greatest commitment and continuity of employment as the breadwinner. Heath and Britten (1984)

on the other hand suggested that the occupation of the wife should be used instead as an indication of the family's class, because in so many instances, they often take on jobs, even menial jobs, to boost the family income, and mitigate against falling standards (Bilton et al, 1987). A woman's employment can indicate the standard of living of the family, particularly in relation to her husband's employment, as well as in the type of gender roles that children are brought up to accept.

As domestic culinary activity in most societies tends to be allocated on the grounds of gender, there has been a tendency for it to be used as an indicator of the level of formal and legal equality between the sexes in society. In the home, women tend to be mainly responsible for housekeeping, childrearing and food preparation (Seymour-Smith 1975, Bilton et al 1987). However, a recent study on the trends in the gender division of household labour for American households between 1965 and 1995 found on the whole that there had been an increase in the male involvement in housework and a decline in the time females spent on housework over the decades (Bianchi et al 2000 p217). Part of this trend was attributed to husbands with a more egalitarian gender ideology being willing to take on tasks like cooking and cleaning, than those with a traditional gender ideology. Though the gender segregation of tasks still exists, with women being in the main responsible for core housekeeping and nurturing roles, and men concentrating on household maintenance tasks, the results begin to suggest a shift in cultural ideology about women's work.

In a Yoruba household, other people besides the mistress would tend to be involved in housework. Generally, tasks such as sweeping, dusting, dishwashing, cooking and laundry can be delegated to children once they are considered old enough to carry them out safely and responsibly. Furthermore, a middle-class Yoruba household is more able to afford domestic help or have poor relatives resident with them, so the men are not likely to be involved in any housework as there are several other people to whom such tasks could be delegated.

It is generally recognised that certain foods and dietary habits are indicative of social status and lifestyle parameters. Nigeria's colonial past resulted in pro-Western foods being adopted by the upper classes, and soon became symbolic of socio-economic aspiration. Nigeria's first colonial governor general, Lord Lugard pointed out in his 1920 treatise

entitled: The value of British rule in the tropics to British democracy and the Native races, that the Africans did not know the use and value of the foods, textiles and natural resources until the British took them and transformed them for a better product all to the benefit of the industrial classes and the improvement of the standards of the living of the indigenous African. It is also implied that such foods are seen as that of the '*alakowe'* classes, i.e. those learned in Western education, hence a symbol of class solidarity. In some cultures, food is gendered, such that certain foods can only be eaten by or prohibited to men, pregnant women, old men and women etc. In Yoruba, food taboos and allergies are termed "*eewo"*, and in traditional religion, as Webster (1942) pointed out, individuals are socialised from a very young age to recognise personal, hereditary and lineage food taboos and allergies and by implication, kin solidarity and identity.

In terms of cuisine, Goody (1976, 1982) stated that a range existed from low cuisine (domestic cooking) to haute gastronomie *(*high cuisine) and this was reflected in a society's social structure and hierarchy. He argued that unlike Euroasian societies where social hierarchy was reflected in the cuisine, pre-colonial traditional African societies tended to have a more simple, largely undifferentiated egalitarian cuisine accessible to all levels of their societies. The merit of this observation is that if food choices, and method of preparation are more or less consistent in African societies, it is then possible to compare the use of the kitchen in terms of lifestyles across the socio-economic strata, particularly where some sectors now experience the literate, pro-Western, industrialised lifestyles of the West alongside the traditional.

Solidarity and Space

In the formation of social networks, Durkheim(*1893,* translated: Halls 1984), finds that solidarity arises when increased population density gives rise to increased division of labour and specialisation resulting in interdependence, social differentiation, and increased individualism over collective solidarity, consciousness and conformity. Specialisation in labour provides complementary economies whereby elements choose to co-operate to bring about cohesion, or a unity, or "organic solidarity". Mechanical solidarities in contrast, prioritise the group over the individual and are characterised by low specialisation, and similarity of parts as opposed to variety. A mechanical solidarity is constituted by individuals directly linked to society through biological ties, kinship and

religion, who maintain their stability by continuity of existing roles, roles which can be substituted by other members of the society.

Based on Durkheim's division of labour theories, Kent (1990) suggested a system of classification relating to the socio-political complexity of a society, and went on to posit that it determined the organisation of space. She defined five categories of societies with increasing socio-political complexity, socio-political stratification, partitioned buildings, gender-restriction for items, economic specialisation and division of labour. The Category 5 societies, in which the Yorubas were classified were characterised by full-time social, political, religious and economic specialists, secular and non-kin control groups, and a standing military. Socio-political classes are economically differentiated and rigid castes occasionally exist, with a pronounced emphasis on gender differences and rigid division of labour. They are usually sedentary agriculturalists, urbanised, tend to be ruled by a king, and have age-grade divisions. Category 5 domestic spaces are also characterised by a rigid segmentation of spaces for secular and sacred functions, with boundaries defining and controlling accessibility, and in that sense, indicating the borders of status and solidarity. That is to say that increased partitioning of space and use of space for specialised functions should correspond to more complex societies and organic solidarities. Conversely, with respect to the current study, the use of multi-functional spaces will therefore be indicative of a mechanical solidarity.

With regards to solidarity and space, whilst Ozaki & Lewis (2006) claimed that the boundary between indoor and outdoor space represented the change of status in space, Hiller and Hanson (1984) found that the duality of the inside and outside produced a relationship between social solidarity and space. They took solidarity to mean the reproduction of similar patterns of organisation in situations where subjects are spatially separated from one another and the surrounding world. In this sense, solidarity was spatial where links with other members of the group allow for encounter and continuous movement across the boundary, but transpatial where there was distinct isolation between the groups, yet in spite of the boundaries, there was an analogy between the patterns. That is to say that where individuals share a convex space, they experience a spatial solidarity, but where a particular social group with a distinct identity were to use space in a manner that reflected their similar outlooks, even where the spaces were not contiguous, there is a transpatial solidarity, because it is based on an analogous relationship. Garvey (2001)

argues that self-identity is embodied in the way interiors of homes are arranged and the routine activities undertaken, as they also indicate aspects of interaction and experience. *(New)* Where this self-identity is related to a group identity of how particular groups of people arrange the interiors of their homes, there is transpatial solidarity. In terms of solidarity amongst people, Fararo and Doreian (1998) also defined a 'solidary' relationship as one that is transpatial, for example, Americans displaying the 'stars and stripes flag' on the 4th of July in their homes as a symbol of national solidarity and identity was one of solidarity between individuals not in the same spatial boundary, and it focussed on a pivot across the structural divide, that is, to the nation's symbol of liberty and independence. In terms of 'emphatic solidarity', which is a mutually reciprocated alliance and commitment to a shared purpose and experience, such as in a love relationship (i.e. with love being the pivot), Heise (1998) notes that emotional response to a situation is not always equivalent because both groups do not always have the same power, and it is a temporal alliance because emphatic solidarity exists as long as there is a pivot. However, Skvortez (1998) challenges their arguments on the basis that they all seem to conceive of solidarity as being derived from social structure and not as an entity in itself. As such, current viewpoints all seem to agree that solidarity does not imply equality. For instance, a family is a solidarity unit, which assuming it is not in crisis, should have unity, coherence and integration, participate in joint activities, yet its members are not equal, because there can still be social distance between them (Jansen, 1952).

Material culture has also been attributed to food, consumption and even kitchen utensils, such that Douglas and Isherwood (1979 pg44) see food as a means for "discriminating values" and in which the varieties of food consumed is directly proportional to the levels of distinction, and where the utensils used reflect a person's cognitive abstractions and ideologies. Consumption therefore becomes an iterative means of classifying individuals and activities, and goods become signifiers of social classification and solidarity identity, and communicators of internalised aspirations (Clarke, 2001). The relevance of these arguments relates to whether household solidarity is transformed over the course of the development cycle of the household and it various alliances, and how well the social identity exhibited in the lifestyle choices of by particular socio-economic groups could be representative of their aspirations and acceptable conduct.

Social mobility and space

It has been stated that in post-industrial Western capitalists societies status is achieved rather than ascribed. Though they do not claim to have equality of status, but offer equality of opportunity these societies are capable of having a meritocracy. A meritocracy is a society with social mobility based on worth, although, the inheritance of wealth will undoubtedly give a person an easier opportunity for a better education, and by extension, better occupation and income, which implies that two competitors for the same opportunity may not be competing under same conditions. Nevertheless, current trends indicate that the increased number of educated people has raised the bar for the minimum educational credentials needed for entry into certain jobs than was previously required.

In terms of how social mobility affects class structure, Giddens (1973) argued that the upper classes in Western societies have a closed structure and whilst there can be mobility between the working and middle classes, the upper classes have managed to maintain their distinct social identity, which they reinforce through distinct patterns of behaviour (Bilton et al 1987). Nevertheless, this raises questions on whether such distinct patterns of behaviour are evident in the way space is used, and whether newcomers take on board these spatial manners or not. Bourdieu (1979) had argued that some aspects of class behaviour was reflective of the inherited cultural capital of individuals based on their backgrounds which they took that with them when they moved on to other areas or even changed their social status grouping, that is in the areas of their social mobility.

Other questions to be addressed include whether increased social mobility is evident in the use of space in terms of activities that take place there, the objects stored, and the type of food consumed and stored. For example, Hanson (1996, 1982) compared how the working classes and the middle classes named and made use of the same standard London Victorian terraced home and found that when the middle classes moved into the homes that had previously been occupied by the working classes, they tended to open up the interiors more, and free up the visual and permeable connectivity between spaces, but shut the front door to the street, whereas the previous working class inhabitants had left the front door open but maintained rigid boundaries between rooms. The use of space was also evident in the decoration styles, whereby the middle classes sought neutrality in their interiors, but the working classes had desired ornate décor. This was a culturally-defined way of organising space and it signified a form of class solidarity. In the same vein, it

raises questions as to whether individuals who acquired social mobility within their lifetime or inter-generationally will use space as their parents or their peers.

A question that will be addressed is to find out where households within each of the socio-economic groups choose to display or store artefacts that symbolise their increased economic capabilities as this will give an indication of how their social mobility can be expected to manifest itself in space. Another question will be to ascertain what the lack of physical boundaries for space and activities signify in terms of status, because Kent (1990) has argued that cross-culturally, highly-segmented spaces and activity separation correlates to higher socio-political classification, but, Hanson (1996, 1982) found that within the same culture, a higher social class knocked through walls and eliminated boundaries in the living spaces in their homes

SUMMARY

One of the main points raised in this chapter was that it was necessary to understand the nature of boundaries in spatial settings in order to explore the manifestation of status, solidarity and social mobility in domestic space. The principles of the space syntax theory served to define convexity, depth, visibility and permeability in space, but this current study argues that such scope should include that of sensory proximity of adjacent spaces because visibility and permeability of adjacent spaces may not fully portray the effect of auditory and olfactory sensual stimuli on the use of space. The literature review also found that because the distribution of culinary-related activities and storage has extended the boundaries of the culinary spaces over many spaces, it is perhaps expedient to discard the notion of the three basic nodes, from which the kitchen work triangle is derived because of its limitations, and opt to study the kitchen in terms of all spaces where food preparation activities and storage occur, termed culinary-mapped spaces. Other ideas garnered from the study into status in the workplace suggest that spaces need to be categorised into degrees of accessibility to other people, which increases as the one moves away from the primary territory. Essentially, status, solidarity and social mobility in space have to be assessed in terms of activities, objects, food and people.

The next chapter on Yoruba household and houseform consists of a background information into the housetypes and the culture of the people in order to understand how these sociological concepts are determined within the society.

III Yoruba houseform and household

The purpose of this chapter is to describe what life is like in a Yoruba household in Nigeria. It starts with an analytical description of three housetypes that are present in the sample. It then follows with a narrative of Yoruba society and its values in order to understand how status, solidarity and social mobility is determined, and a description of typical indigenous culinary practices.

INTRODUCTION

The first part of this chapter presents the three housetypes found in the sample, namely the orowa, the rooming and the modern housetypes. The three housetypes in this study represent distinct historical and social aspects of the Yoruba lifestyle. This is followed by a description of how status, solidarity and social mobility are determined among the Yoruba people. The next section describes aspects of Yoruba household economy and mode of production. The last section consists of a description of Yoruba culinary practice in terms of culinary activities, objects and food.

YORUBA HOUSEFORM

The orowa housetype

The Orowa house is the oldest of the housetypes surveyed, which has existed since pre-colonial times (i.e. pre 1875). The orowa house is a single storey house with a central collective concourse or living space, called the *orowa* in Yoruba, flanked by rooms, called *iyara*, on opposite sides of the orowa, and an entrance and exit on the other two opposite sides. (See Fig 3.1). The orowa is a centralised activity and service space, and a concourse for circulation between the rooms and the backyard facilities. Activities that take place in the orowa range from entertainment, relaxation, and sleeping to cooking, food preparation, eating, food-processing, and commercial trading. The orowa house has a hipped pitch roof and internally, several roof spaces have partially exposed roof beams and rafters for a storage loft, called *aja*.

Fig 3.1 – Typical orowa house- the orowa is the central communal Space flanked by rooms. Outhouses consist of bathroom and toilet. The well is in the sideyard. There is no designated kitchen space in This house.

The orowa housetype is found in the older parts of Ile-Ife town, particularly around the historical town centre, called Enuwa. The orowa houses tend to be part of a family compound or *agbo-ile*, and as such, fenced boundaries, if any, would be between neighbouring family compounds, and rarely, between houses belonging to the same compound. Consequently, it is very difficult to identify site boundaries. On a typical site, there are several main houses as well as smaller outhouses for the service facilities. The main house consists of the *orowa* and *iyara* and service facilities tend to be shared with other households, so they may not always be in the immediate vicinity of the building sampled. The house in Fig 3.1 above uses one of the *iyara* as kitchen, though there are no plumbing or drainage facilities there. The kitchen has the cooking hearth, made up of three stones, and storage cupboards.

Households can consist of members with high status in traditional society (i.e. hereditary chieftains as opposed to modern honorary chieftains), and yet have low socio-economic status in modern elite society because of their lack of formal western education, which limits their occupations to the manual and informal sectors. The orowa house takes its sociological reference from the traditional courtyard house as a residence for extended kin, which is passed on from one generation to the other. The orowa bears a similar relationship to the rest of the house as the courtyard, as a central activity and circulation space in the house. As new generations inherit the houses, there is a now a growing tendency to demolish the original house to make way for the newer housestyles, so the orowa housetype may well disappear eventually.

Several writers associate the quandrangular impluvium and cloistered courtyard with Yoruba domestic architecture (Mabogunje 1958, Ojo 1966, Krapf-Askari 1969, Marafatto 1983). Although courtyards were generally found more in grand buildings like such as palaces, shrines and temples, wealthy lineages (chiefs, noblemen, merchants) utilise this architectonic feature in the layout of their houses, particularly in the reception areas of large extended family compounds (Ojo 1969, Dmochowski 1990). In an *agbo-ile* (family compound), groups of houses could be situated in detached premises within the boundaries of the family land, or be connected, whereby courtyards were formed to enable natural lighting and ventilation to deep spaces. As such, courtyards were centripetally oriented and introverted. In Enuwa, few courtyard houses were found, but the orowa housetype had similar configurational properties as the courtyard house described above. Co-residency with biological kin was vital for the cohesion and long-term stability of the traditional extended family and this meant that huge complexes had to be built to accommodate the continuously expanding and contracting family. Rooms tended to belong to lineages and it was rare for them to be re-allocated to cousins. Members usually had exclusive access to a single room (*iyara*), for sleeping and storing personal belongings, but all other spaces were shared. Women cooked and carried out all daily activities in front of their rooms and occupied these rooms until marriage, or re-occupied them after divorce or widowhood; and men, occupied their rooms all through their lifetime, until death and after, for some people were buried in their rooms. The head of the family, the *balé,* resides in an apartment near to the main entrance to the compound called the *akodi* (See Fig 3.5 below – the *akodi* is highlighted).

From the basic one-orowa house for the common man to the multiple orowa for the chiefs and noblemen (See Fig 3.2 & 3.3 below), entrance is through a passage room, which opened on opposite sides to a front porch or veranda and a collective *orowa* or cloistered impluvium. For subsequent generations, *orowa* were then added on in a similar configuration via passage rooms leading to other *orowa* or courtyards with wide verandas and ancillary rooms.

Image removed for copyright reasons

Figure 3.2: Mr Akogun's house, Ile-Ife. A single courtyard house

Source: Dmochowski Z. (1990 p 2.54)

Figure 3.3 Chief Akeran's house,plan, elevation & section. Ile-Ife. A double courtyard house

Source: Dmochowski Z. (1990 p 2.55 – 2.56)

Image removed for copyright reasons

In the *agbo-ile* compound, families occupy a plot of land for generations, and younger members demolish their parents' houses to build their own on the same footprint. Some houses may be left in a state of dilapidation for long periods because the children have not been able to build a family house in place of their parents', and no one would dare to encroach on their land. As a result, a variety of styles and periods of houses may be found (See Fig 3.4 below showing three family compounds in the Enuwa area. The thick line

indicates the boundary line, but there is neither a fence nor any visible physical element to mark the lines of the boundary. Several houses are dilapidated and in ruins).

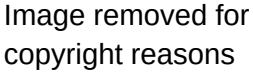


Figure 3.4: The Seru, Molodu and Awura family compounds in Enuwa, Ile-Ife

Source: Obafemi Awolowo University, Ile-Ife. Department of Architecture Archives 1988.

The outdoor space accommodates all the services and because they are shared, the location of wells, toilets, bathrooms, ceremonial cooking, refuse disposal, trading etc. have to take

place in designated areas. Richer families erect boundary fences and gates to demarcate and identify their land (see Figure 3.5).

Figure 3.5: A fenced agbo-ile in Ile-Ife:

The AroAjin Family Compound

Several spaces, both indoors and outdoors tend to be used for some culinary-related activity or food and utensil storage in orowa houses, and that includes the *orowa,* the *iyara*, the veranda, the backyard and frontyard, with the exception of the obvious service facilities, namely the toilet and bathroom. The well and the firewood hearth tend to be situated in the yards, so most of activities will take place in the shared collective spaces. Short-term storage or un-secured storage of cooking utensils can take place in the orowa, backyard or frontyard, but long-term storage and those requiring secured access will tend to take place in the *iyara* or designated storerooms. Some secured storage can take place in the orowa where households use a soup cupboard with a padlock. There are several minor variations to the orowa housetype and they will be presented in greater detail in Chapter Five – Orowa house and community, as part of the analysis for the research.

The rooming housetype

Like the orowa house, the rooming house is a residence shared by multiple households, but unlike the orowa house, it is a community usually inhabited by non-kin. It is a co-residence. Unlike the orowa house, it establishes a power structure which is not determined by biological or socio-cultural parameters, but on economic terms, that of the landlord and the tenant.

Rooming houses were developed in the colonial era when people migrated from their hometowns to the major urban centres in search of jobs with the new colonial administration and other job opportunities that were generated as a consequence of this

influx in population. As these people had moved away from the family *agbo-ile*, they had to pay for accommodation with households that had vacant rooms, and several landowners decided to develop property for this new commercial market, and they became landlords, usually resident in the property, with the tenants. The tenants leased single rooms or intercommunicating rooms, termed 'room and parlour', but shared all other spaces with fellow co-residents, tenants and landlord with the exception of their rooms.

The rooming house is similar in layout to the *orowa* house, but with the orowa narrowed down to a wide corridor or hall, and with an upper storey and staircase in the hallway, and with the halls flanked by rooms in a similar fashion to the *iyara* in orowa houses (See Fig 3.6 below). The rooming house is colloquially referred to as the 'face-me-I-face-you' house, because of the symmetrical arrangement of rooms opposite the central hall.

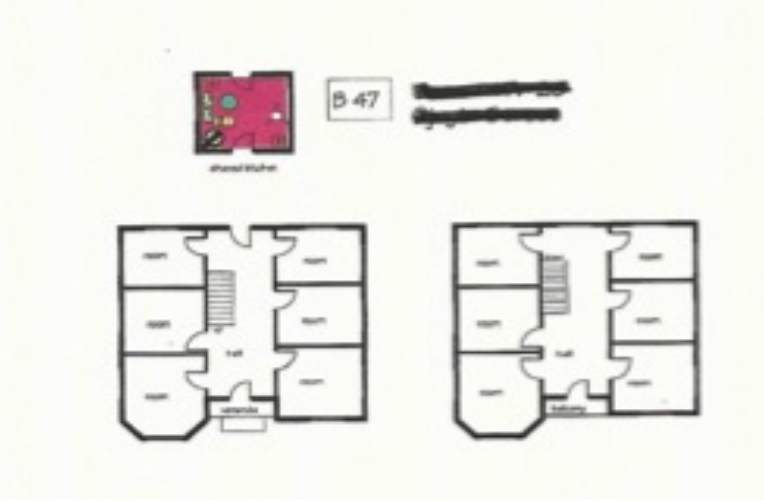


Figure 3.6: Floor plans of a typical rooming house.
The main culinary spaces are highlighted

The rooming house tends to be of the hybrid Nigerian/Brazilian style, and is so called because it has acquired architectonic features, concepts, aesthetic elements and styles and resulted in an eclectic mix of Portuguese-Brazilian, Yoruba, and English colonial bungalow architecture. A significant number of houses found in the Ile-Ife sample displayed this

mix, in the spatial configuration with internal corridor/living room/passageways, and in the use of architectonic elements such as internal and external stairs, balconies, half-hexagonal bay windows, verandas, ground floor shops, carved and sculpted balustrades and columns, moulded architraves on doors, transoms and fan-lights, wooden shutters, louvre-windows, and roof-vents. The original Portuguese-Brazilian house style is believed to have been introduced by returning slaves from the American continent following the Abolition (Marafatto 1983).

There is a variation of the rooming house which is a storey building with the central hall flanked with rooms, but with external stairs leading to external balconies (gallery) on the upper levels, and porticoed verandas on the ground floor (See Fig 3.7). This housetype is more extrovert, with an open relationship to the road. The internal corridor is narrower, and the use of decorative elements such as mouldings, carvings, and inscriptions on the façade and balconies, became more elaborate. Marafatto (1983) suggested that the urban Brazilian middle classes favoured this housetype.

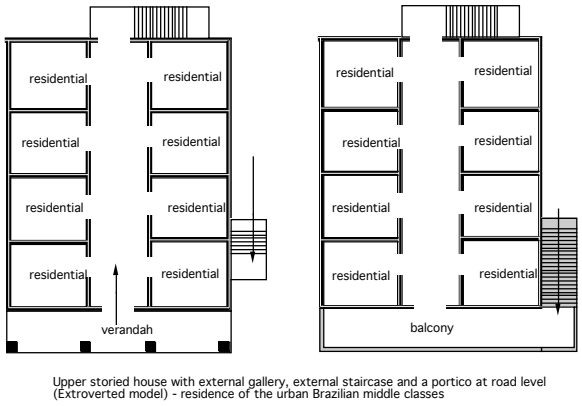


Figure 3.7: The extroverted house with external staircase

In the rooming housetype, there is a relatively high population density, because each room or two could accommodate a whole household, and they all had to share the few service facilities in the backyard and frontyard. The houses usually had fenced boundaries because they usually belonged to people who were not related. Tenants were only permitted to use only the facilities within the fenced curtilage of their residences for all their domestic activities, including fetching water from the well. Almost all houses had a designated space for a kitchen, and it was usually located in the backyard. However, the

high demand for it meant that people also used the hall, veranda and backyard for their cooking, food preparation and other domestic activities. Some households also had padlocked wooden soup cupboards in the hall and in their rooms to store cooked food and cooking utensils. As a result, culinary-related activities were dispersed into several spaces these houses.

The analysis on rooming houses is carried out in detail in Chapter Six – The rooming house and co-residency.

The modern housetype

The modern housetype in this study was built in the post-colonial (after 1960) era. These houses were built for households in middle stratum of the socio-economic structure, all with Western education, living within a community of the academic elite of the Obafemi Awolowo University in Ile-Ife. The modern house takes its sociological reference from the African colonial bungalow, as a self-contained house designed for a single nuclear family of man, wife and children, and with exclusive occupation over all the spaces. The colonial bungalow was a single storey house built by the colonial British for their administrators who came from Britain pre 1960, and they were usually located in a residential estate called the government-reservation area (G.R.A). The 1909 colonial office records in Lagos stipulated that for any house with no floor above the ground floor and required to be used European occupation had to be *"detached, contain a number of specialised rooms and built according to European (English) standards, and provide for one person or nuclear family"*(King 1984 p 195). The environmental requirements stated that these accommodations should incorporate a veranda, roof ventilation, raised plinths, piers and quick assembly methods.

Unlike the orowa and rooming houses where some spaces like the *iyara,* room, hall *and orowa* were designated as multi-functional, the modern house has distinct, designated spaces labelled for every activity – living, dining, sleeping, cooking, studying, relaxation, utility, circulation, toileting, bathing and storage, and these spaces were not shared with other households (i.e. with the exception of communal circulation spaces in the blocks of flats) See Fig 3.8 below. The modern house is equipped with modern utilities and infrastructure i.e. plumbing, drainage, pipe-borne water supply and mains electricity for power and artificial lighting, which allows it to make use of modern technology. As gas is

not available in the mains therefore, households tend to purchase cooking gas in pressurised metal cylinders and refill it at petrol service stations. The house is designed to be internally self-contained and when outdoor spaces were used, they were enclosed courtyards within the overall external walls of the house. , The kitchen layout was based on the work triangle of cooker, sink and fridge.

Figure 3.8: Floor plans of a typical modern house.
The main culinary spaces are highlighted

After colonial rule, one of the most pervading effects of the colonial bungalow in housing design and to an extent the changing social structure was that spatially, the need for privacy, and the allocation of space for different types of leisure and living activities resulted in several specialised spaces (living rooms, dining rooms, bedrooms and study rooms) for a single nuclear family. In terms of the building form and fabric, verandas, mosquito netting, glass louvers, and building materials such as cement block, asbestos tiles, plaster and paint, came into regular use. The bungalow as a housetype did not maximize the land area and because it only accommodated a single family, it did not take off commercially, and tended to be used in Government sponsored housing. When the designers for the university houses were looking for inspiration of a regional vernacular housetype to influence their design, the colonial bungalow emerged as the style that

embodied the demographic requirements of the intended academic households – a detached house, with specialised function rooms, for the single nuclear family.

The analysis of the modern house is presented in Chapter Seven – The modern house and self-sufficiency.

YORUBA HOUSEHOLD

How status, solidarity and social mobility are manifested in Yoruba society

Yoruba hegemony is derived from several sources, namely historical and traditional structures, seniority by age, biological and patrilineal gender, marital status, parenthood, cosmic power/status (through religion), economic wealth and political status. Solidarity is derived from the ancestral city of origin (ethnicity), lineage (from both parents and by marriage), age-sets or age-mates (*egbe)*, fraternities, sororities, secret societies, economic pooling (*ajo & esusu)*, commercial unions and religious unions. The multiplicity of alliances and the mutual dependency, accountability and support that it demands can result in weakening the boundaries of hegemonic and solidarity groups. Social mobility is achieved by the acquisition of economic power, which can result in or derive from political power and occupation. Having a Western education is also seen a means of increasing occupational prestige.

Certain aspects of Yoruba hegemony and solidarity have their origins in the historical structure, which following centuries of wars, conquests, resettlement created a diversity in the ethnic landscape of the Yorubas. The civil wars resulted is a system of urbanisation consisting of a heterogeneous mix of ethnic Yorubas in the major towns (Mabogunje, 1968). The unequal status of original dwellers to war refugees and exiles in Yoruba towns eventually led to the setting up of solidarity enclaves to accommodate people from the same towns of origin, and to protect their interests. This generic pattern still exists among the Yorubas who seek to form alliances with others from their hometown, which Eades (1975) argues as being their way of recreating the extended family in Diaspora.

Anise (1984) and Alo (1984) stated that pre-colonial Yoruba was largely egalitarian, with an indigenous social inequality based on age and sex. People and households had specialist occupations in the area of agriculture, commerce, weaving, tanning, smithing,

leather-working, tailoring, carving on wood and calabashes, music, medicine, and hunting. Seamanship and fishing was confined to coastal areas, and building as a profession was almost unknown, as men came together to build. Occupations that were specifically female included cloth spinning and weaving, dyeing, palm-oil making, beer-brewing, pottery, manufacture of beads, cottage food industry and purveyors of cooked food, hair-dressing and rearing of small poultry livestock.

For modern day Yorubas, Western educational qualifications and occupation have brought wealth, prestige and established an elite class of the learned or "*alakowe*". The "alakowe" at first were mainly Christians, having trained under the colonial missionaries. They were bilingual (Yoruba and English) and the colonial masters saw them as representatives of the people. They took on civil service appointments and after Nigeria gained Independence in 1960, they became the political leaders. In post-Independence Nigeria, however, gender created greater socio-economic differentiation because the colonial structure sought to train men for clerical and skilled work, and therefore they had access to resources and opportunities more than women (Anise 1984, Alo 1984).

Nevertheless, the definition of what parameters best represent class stratification in an African context is debatable. The cultural diversity and heterogeneity mean that social definitions of wealth, success, failure and poverty would differ (Bienen 1981). Thus, patterns of landholding, occupation, fertility, ancestry, material wealth, paranormal talent all attribute status and power differentially.

The Yorubas tend to determine their identity first on the basis of their "*ilu*" – ancestral hometown (Trager 2001). It is a means by which they exclude and accept individuals, determine political alliances, and sometimes marriage partnerships and it is perhaps more significant than religious adherence Laitin (1986). Usually, the hometown is the place where one's father's lineage -"*idile*"-is from, but the multiplicity of alliances that an individual can acquire from their maternal ties, marriage, long-term emigration, education, profession, and economic contribution to solidarity groups, can provide them with flexibility and choice in describing the parameters of their full identity as it favours them. Men tend to emphasise their hometown connections, and were expected to build a country house there even if they resided elsewhere. Women, on the other hand, tend to emphasise their multiple alliances to their own patrilineal hometowns as well as their

husband's, which was effectively that of their children (Trager, 2001). This suggests that women regarded the merits of solidarity as being advantageous for their individual advancement and security particularly when negotiating with their marital kin and patrilineal kin.

In a Yoruba family, the husband is expected to provide the accommodation for his families, give money to his wives to start trading, contribute to the upkeep of their children and meet the obligations for their siblings. Their wives were expected to help support themselves and their children, and fulfil their responsibilities to their husband's kin (Mann 1985); and their obligations to their parents and natal families continue even after marriage.

In Victorian England for instance, societal stability was promoted on the grounds that men had to go out to earn and women to keep house, and tend to the children (Seymour-Smith 1975). It was this Victorian society that colonised Nigeria, and tried unsuccessfully to impart these structures in the home. The missionaries and colonial administrators did not understand the need for a Yoruba woman to earn an independent income, nor the pitfalls that having all the finances in the hands of the man could pose to the stability of the monogamous union. They were dismayed when the Christian converts on becoming more prosperous took on additional wives, usually in common law, or had children from extra-marital relationships.

Gender studies argue that polygyny also serves to promote the domination of men and subordination of women. Elite women tried to promote the nuclear monogamous family set-up for the poorer women but studies in West Africa suggest not all women viewed polygyny as a disadvantage, as having a younger wife allowed them to pursue their own interests and someone to delegate mundane housekeeping tasks to. It also meant that the responsibility for feeding their husbands was shared (Mann, 1985). These women accept the biologically rooted gender distinctions but challenge the subordination of women as an integral part of these socially defined values (Amadiume, 1987, Ekong 1984, Mikell 1997).

So, whilst Western feminism sought to give women freedom and equal rights to education, economic productivity, independence of income and choice in reproduction, in

African feminism, women celebrated their roles as mothers and homemakers as primary, but sought to keep generating a good income, as this enabled them to gain increased respect and long-term security in the community.

For this reason, studies in sub-Saharan African feminism recommend that it is necessary to understand the complementary nature of the public and domestic roles of women and how Western industrialised values have affected the traditional gender interests in society. The colonial hegemony with its notion of monogamy, female domesticity and subordination, all worked to reinforce the aspects of traditional African patriarchy that created a sexual division of labour that resulted in women becoming dependent on men and consequently, increasingly vulnerable. Mikell (1997) argued that African women do not fight for gender equality in quite the same terms as those in Western industrialised countries. Rather, they consider it more crucial to address the pitfalls of gender differentiation that in modern life hinder them from participating effectively in the economic and political sectors as a consequence of indigenous and colonial gender bias. It is therefore in this context, that gender issues in the domestic environment need to be analysed.

Yoruba patriarchy means a woman could be subject to several males (husband, father, brothers, fathers/brothers-in-law) as well as other females (mothers, aunts, older sisters and sisters-in-law). In the home, it is therefore vital to assess not just the relationships between the sexes in the home, but also amongst women, as women acquire "dual-sex" roles in relation to other women (Amadiume, 1987) and consequently, one single category of women cannot be expected to represent the interests of women at all levels.

Indeed, the criteria for determining gender in a Yoruba household is not a clear binary distinction of male/female, but a seniority gradient that ranks individuals according to biological age and patrilineal gender simultaneously. The rules of patrilineage in the Yoruba extended family structure ranks any person, male or female, born into a household as senior to anyone who later marries into that household, irrespective of the biological age of the individuals (Biobaku, 1955). As such, between siblings, seniority is according to biological age, such that the Yoruba terminology for a sibling does not give an indication of the gender (i.e. sister or brother), but about whether they are senior (egbon) or junior (aburo); but in marriage, seniority is according to patrilineal membership, or patrilineal

male gender, because a female born into a home is considered "male" with respect to another female that marries into that home.

As tasks are allocated and delegated on the grounds of gender and age, these aspects of domestic politics are particularly evident with housekeeping responsibilities. It is possible to observe the differential status between the women in terms of age, patrilineal male gender, and marital seniority by observing who does the menial tasks and who does the prestigious ones. Work is almost always delegated to a junior, and in relation to cooking and food preparation, this would mean children, usually daughters. Sons may assist in the fetching of water and firewood, dishwashing and fanning flames, usually in non-food-handling support work, although they can be called upon for strenuous tasks like yam pounding. As children get older and more independent, mothers tend to hand over more of the kitchen activities to them and take on a supervisory role.

Yorubas tend to stratify the society in terms of age-sets or age-mates (*egbe)* and particular lifecycle landmarks such as marriage and parenthood enhance a person's status and recognition within the society. Membership into an *egbe* – fraternities, sororities, societies, secret cults and unions - is very common for Yoruba people. An individual can belong to a union from their hometown, a fraternity from their schools and university, a brotherhood or sisterhood in church, a social club and even secret societies such as the *Oro* and *Ogboni* (Webster 1942). During ceremonial events such as weddings, funerals, etc, each solidarity group display their connection to the celebrant either by wearing the same outfit (*aso egbe)*, and distributing personalised souvenirs, and the celebrant is expected to reciprocate when it is the turn of any other member.

Mann (1985) stated that the Yorubas were required to form their most intimate alliances with people of the same sex, and some would confide in this person more than a spouse. Although this would have been most prevalent in polygynous and unstable monogamous unions, in modern times, couples in stable relationships still tend in their daily affairs to socialise separately, and usually with people of the same sex. Women still go shopping together, cook together and spend their leisure times together.

Another aspect of solidarity amongst *egbes* is the practice of financial pooling, called *ajo* or *esusu*. Women in particular take part in the pooling syndicates to save money to meet their major financial obligations, particularly expensive ceremonies (weddings, funerals, baby

naming, graduation), building a house, or starting a business. Women also pool in domestic food purchase, and sometimes come together to buy food in bulk and wholesale prices, which turns out to be cheaper per individual.

Childcare is still exclusively feminine and as it is not seen as an occupation, a woman still had to work. In respect of the Nigerian labour market, the 1999 Nigerian Demographic Survey found that 48% of women nationally were employed and out of that, 69% of them were in Southwest Nigeria (Yoruba areas) and were self-employed. Children are expected to actively participate in food preparation, housekeeping, childcare, and in some instances, in income-earning activities, as soon as they are considered old enough, which could be as young as 6 or 7 years of age (Jaiyebo ,2003; Onokerhorhaye 1984).

For these reasons, it can be argued that principles of hegemony and solidarity employed in the process of negotiation within the society at large, occur in the domestic environment. Domestic politics affect the structure and hierarchy in Yoruba households as well as the mode in which social and domestic roles and responsibilities are acquired and allocated.

Household economy and domestic mode of production

The household is described as the basic social grouping in contemporary society and is differentiated from the concept of family with its attendant aspects of lineal descent, kinship and resident locality- McC.Netting et al (1984). Urbanisation and industrialisation brought movement towards the elementary family form as individuals could raise income and sustain a living independent of the traditional family, which was constituted by multiple conjugal units linked by kinship.

In Yoruba households, there is rarely a common budget between husband and wife, there is widespread fostering of children of poorer relatives, and some polygynous set-ups consist of wives and their children living in different houses and sometimes towns. Most urban families in Nigeria support elderly and poorer kin in smaller towns and rural areas and several immigrants in the West send money home regularly for the upkeep of the household. According to the Nigerian 1999 Demographic Survey (called Survey 1999), the population has a dependency ratio of 94, i.e. there are 94 persons under 15 or over 64 for

every 100 persons aged 15 to 64. This means the average Nigerian was expected to take care of approximately one other person.

Survey 1999 also found that 83% of households were headed by men, and 17% by women, and the mean household size was 5 persons, with more than half the population under 17.5 years old, a low level of orphanhood, and up to 25% of fosterhood. However, the survey did not make any distinctions for household structure in terms of polygynous, extended, or single-nuclear families.

In order to clarify the definition of households with respect to this study, four categories of activities performed by households are emphasized namely – (a) production, (b) distribution, (c) reproduction, and (d) co-residence.

Production refers to resource generating activities and tasks, which determine the division of labour within the home. Survey 1999 suggested that educational level of the population could be used as an indicator of the socio-economic development of the country. The labour force is constituted by large disparities in the level of education and types of skills as in Table 3.1 below:

	None	Primary	Secondary	Higher	Total
Men	26.1%	34.6%	26.8%	7.2%	15,259 men
Women	38%	30.5%	20.6%	3.9%	15,273 women

Table 3.1: Comparison of level of formal education between men and women – Source: Nigerian 1999 Demographic Survey, National Population Commission

Of 5 regions (NE, NW, SE, SW & Central Nigeria), the south-west (Yorubaland) had the highest number of men and women with secondary and higher education. Among the older age groups, more men than women were likely to be educated, but the gap has narrowed down amongst the younger people, as families are beginning to see the benefits of educating all children in order for them to get better jobs, and be able to care for them in old age.

The Nigerian labour force is also characterised by low technical skill partly because the focus of educational programmes have been to equip people for "white-collar" jobs. Most

of these jobs constitute the formal sector of the labour force, made up of productive manufacturing enterprises, government departments, education and public health institutions with workers in unionised jobs protected by labour legislation and subject to PAYE tax. On the other hand, formal training for vocational skills for tailors, mechanics, blacksmiths, weavers, carpenters, hairdressers is usually through a largely unregulated apprenticeship system. Along with other jobs in the informal sector such as petty traders, casual construction workers, craftsworkers, these workers tend to be self-employed, have low and irregular income, little protection under labour laws, and are not likely to pay tax. The barriers to entry are low, nor are there stringent independent regulatory bodies to vet or assess individual competence.

A third level was the private service sector, ranging from the provision of personal services to the professional and entrepreneurial kind. Highly educated and skilled individuals like lawyers, doctors, accountants, engineers and architects tend to set up a service-oriented enterprise, and employ people. The competence of employees is vetted through the education and professional institutions, yet as part of the informal sector, they are not likely to be protected by labour laws. The personal service sector consists mainly of those serving at the domestic level, including servants, drivers, gardeners, housekeepers and childminders. These workers have a direct contract and negotiate rates directly with their employers. They are neither protected by labour laws, registered, regulated, nor do they (with the exception of drivers who have a licence) have any means to have their competence vetted.

Onokerhohaye (1984) suggested that the percentage of women in non-agricultural employment could be used as an indicator of women's participation in the economy, as women's work on farms was usually as unpaid family workers. Survey 1999 found that a third of women were employed for 5 or more days per week, and 55.3% of these "employed" women lived in the south-west (Yorubaland). About 66.5% of women in the south-west were self-employed (higher than any other region), and 10.7% of them were in professional, managerial and clerical positons. It also found that women were 79% more likely to be in non-agricultural work than agricultural work, thereby suggesting that women were active participants in the economy.

Table 3.2 below shows the distribution of employment between men and women in the survey in comparison to the national average.

	Women (SW) 1706no	Women (Nation) 3931no	Men (SW) 696no	Men (Nation) 2680no
Professional	10.7%	9.9%	13.2%	12.4%
Sales/Services	61.5%	56.2%	12.5%	13.8%
Manual (skilled)	10.7%	10.8%	16.8%	13.7%
Manual (unskilled)	0.1%	0.1%	0.7%	0.7%
Unemployed	None	None	32.5%	23.4%

Source: National Population Commission: Nigeria Demographic and Health Survey 1999. Published Dec. 2000

Interestingly, the survey did not record women as unemployed, yet found that there was a higher level of unemployment amongst men with secondary and higher education particularly in the south-west, which had the second-highest proportion of men with professional, technical and managerial skills. Women in the south-west worked more than the national average for women in the nation, particularly in sales and services, in which they were more likely to be self-employed and with irregular income.

Distribution refers to the means by which resources are disseminated among members of the household. This is a vital process in determining how resources and activities are pooled to ensure co-operation and stability of the household. In Yoruba society, inheritance laws that devolve all capital resource to the offspring and patrilineal kin results in caution when women invest in household pooling particularly of capital goods as they could be taken away by their husband's relatives. Notwithstanding, almost all households give regular financial remittance to relatives and several actively sponsor the education of younger sibling, nieces and nephews.

The "Survey 1999" queried households on how earnings were pooled into the conjugal fund, and in particular, who decided on how women's earnings were used, in order to measure their status. It found that the higher the level of education, the lower the proportion of women who made their decisions independently of their husbands. The proportion of women allowing men to have power over their earnings was highest in the south-east (Ibo land) and second highest in the south-west (Yorubaland), and also higher amongst educated women than the illiterate.

All children tend to be involved in one aspect of domestic work and because labour is relatively cheap to obtain, some households are able to purchase domestic labour. Husbands may take an interest in shopping mainly for capital goods – electronic goods, appliances, cars etc, but would rarely be involved in food shopping as an activity irrespective of whether or not they contribute funds to it.

Reproduction: Oppong (1975) and Peil (1975) looked at the extent to which husbands and wives shared or separated rights, duties and responsibilities in domestic activity and whether the roles and obligations extended beyond the boundaries of the immediate nuclear family.

Oppong (1975) found that the pattern of division of labour varied according to the residence pattern, such that in nuclear, monogamous neolocal settings with no other adults present, husbands tended to assist wives in contingency situations such as sickness or overwork, and would also find some tasks given as designated household duties. When it came to child care, the "Survey 1999" found that only 1.1% of men in the south-west participated in childcare, usually when the mother was at work, and this was lowest for the whole nation at 2.2%, and in particular lowest for men with higher education (1.5%). This would suggest that westernisation has little impact on gendered roles like childcare.

Essentially, these studies found that among the urban elites, domestic chores and childcare responsibilities were more segregated between husband and wife, and obligations passed on to extended kin. The studies also found that the level of cooperation in domestic responsibilities, financial provisions and management increased with the generations of Western education, and particularly where wives also had higher education, and were probably from middle class families. Likewise, obligations to educate extended kin decreased as the generations of education increased, as most siblings would have a career and independent income and be capable of educating their own children.

Co-residence: The break-up of the co-resident extended family household by the migration of young members to the large urban centres for employment has resulted in the need for new types of housing.

Among the Yoruba, childminding and childrearing activities can also be delegated, and in cases where the parents cannot reside with their children, they are sent to relatives like grandparents for a period in what is termed "purposive fostering" by Goody, Esther (1975) as opposed to "crisis fostering". In purposive fostering, children are reared by relatives who are in a better position to either educate the child, provide companionship to the foster parents and strengthen ties with kin who are relatively well off. The child may return to the biological parents when they are in a position to accommodate them economically. Sometimes where the parents have to live and study abroad in the hope of improving their long-term career prospects, children may be left with relatives living in West Africa. This would imply that the substitution of maternal roles was acceptable in these circumstances. In crisis fostering, children are placed in foster care for their safety and usually because the parents are in vulnerable situations and not capable of caring for them. Oppong (1975) remarked that even when poorer kin are sent in to these urban elites to act as nursemaids, the intention of their parents is to improve the prospects of their child by residing with the relatives, but critics of the system note that these children become used as unpaid servants and are rarely sent to school. The Survey 1999 found that 8.7% of children in the south-west under the age of 15, who were not resident with their parents consisted of those living with richer relatives in order to get a better life, and those sent into domestic service by their parents.

OBJECTS, FOOD AND ACTIVITY

Diet, how food is prepared, fuel, the equipment used, time and labour expended in food preparation, access to utilities, all have a bearing on culinary practice.

Objects: Implements and Facilities

Using Flanery's (1972) definition of implements as working artefacts and appliances and facilities as equipments or working vessels, indigenous implements in Yoruba kitchens include containers: calabashes/gourds *(igba)*, baskets *(apere)*, cauldrons and pots (*isasun & ikoko)*; domestic appliances: grinding stone (*olo & omo-ori-olo*), mortar and pestle (*odo & omo-ori-odo*); and utensils: ladles (*omo-orogun*), serving saucers (*igbako*), knives (*obe*) and spoons (*sibi*). Indigenous facilities are wells *(konga)*, cooking hearth (*aro)* and cooling urns *(amu)*. Granaries would exist in farm homesteads and rural areas. A description of these implements and facilities is given below.

Calabashes/gourds (*igba)*: The *igba* is a spherical gourd fruit of the calabash tree. The flesh of the calabash fruit is hollowed out and the shell is dried to produce a vessel. Its use would depend on the size, with the wide calabashes (up to 1000mm in diameter) being used as basins and food containers, and the smaller ones (up to 300mm in diameter) as drinking vessels and containers. Plastic containers and vessels are the modern equivalents of these containers. Other uses for the calabash are as a musical instrument –*sekere*-, ornament and fishing float.

Cauldrons and pots (*isasun & ikoko*): (Figure 3.9). The clay pot (*isasun)* is gradually losing ground to the metallic pots *(ikoko*), mainly on the basis of durability. The metallic pans are used on the stone hearths (*aro)* or the cauldron stand (*adogan)* with firewood.

Baskets (*apere)*: A product of the palm tree, the *apere* is hand woven from dried palm fronds and is used at home as containers for food and utensils, as well in the market for the display of wares. It is also used a sieve, for washing grains, and separating impurities from foods.

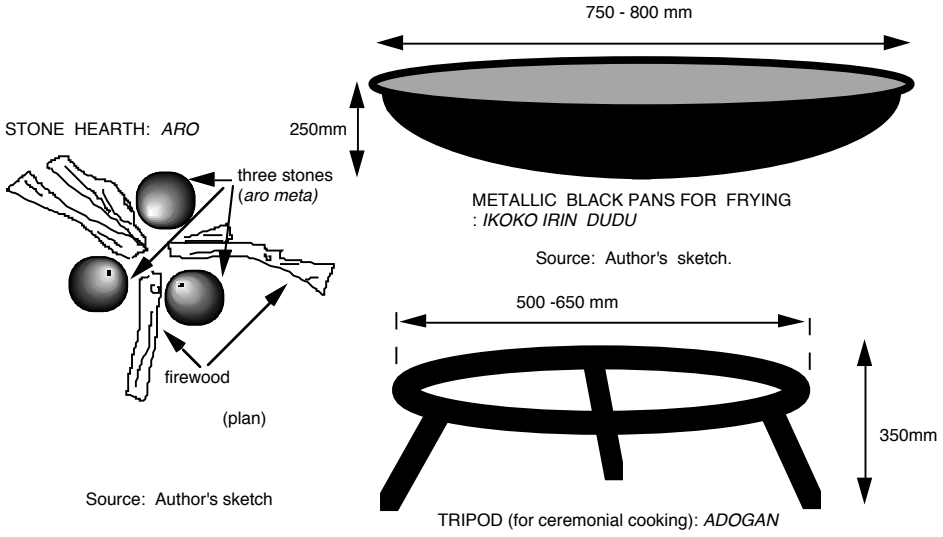


Fig 3.9 – Cooking facilities and receptacles

Urn (*amu):* The urn is a clay container for storing and cooling water. It is sometimes decorated with incisions as seen in Fig 3.10 below:

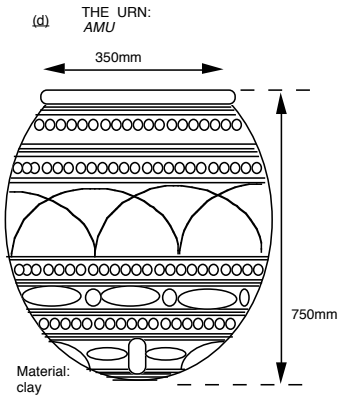


Fig 3.10: The urn (amu) – water container (Source: Author's sketch)

The grinding stone and the mortar and pestle are traditional domestic appliances present in almost every home. The mortar and pestle (*odo ati omo-ori-odo)*: (Figure 3.11 a&b) The mortar – *odo* – is a wooden hemispherical bowl used in conjunction with a pestle – *omo-ori-odo*. The mortar measures 500 – 600 mm in diameter, height of 480 – 500 mm and weighs up to 25 kg. The pestle is a club shaped instrument weighing between 8 to 10 kg.

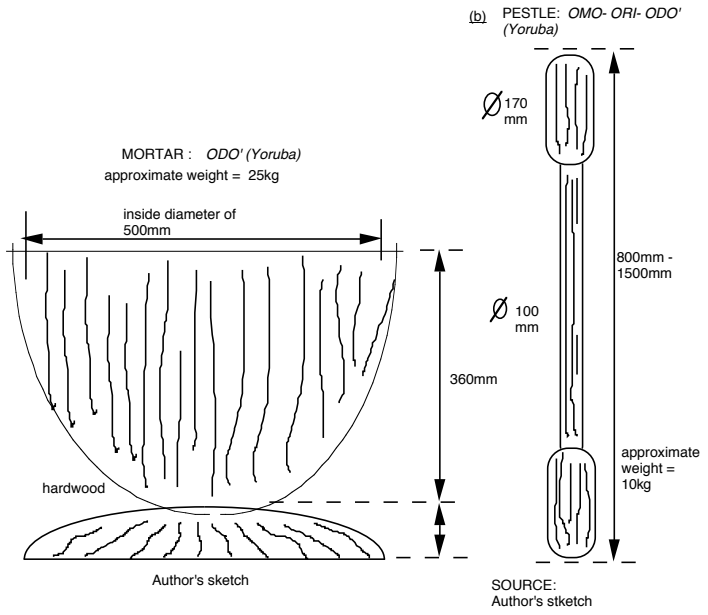


Fig 3.11 – The mortar and the pestle

The mortar and pestle are used for pounding yam and crushing beans. The food is placed in the mortar and crushed and pounded by the pestle in a continuous lifting and lowering process. The mortar is placed on the floor and the user tends to stand up to pound, as the height gives more leverage for lowering the pestle. This has three implications, first in labour expended by continuous lifting of an 8kg instrument, and secondly, the noise generated by the action, and thirdly, the structural impact of the pestle on the floor. As such, it usually generates complaints when used in upper storey of houses with wooden floorboards. Furthermore, its bulk and weight does not make it practical for moving far from the place where it is to be used.

The grinding stone (*olo ati omo-olo*): The grinding stone – *olo* is granite slab measuring up to 550 x 400 x 100 mm, weighing up to 40 kg, similar to the stone age saddle quern (*Fig 1.9 above)*. The grinding stone is used for grinding cereals, grains and stew ingredients (peppers, tomato and onions). The food is placed on the slab and a smaller oblong-shaped granite pebble, the *omo-olo* (200 x 100mm, weighing about 4 kg), is used to grind the food.

The mixer/blender has been the most prolific of modern electronic appliances in Yoruba kitchens, as it significantly shortens the time spent on the grinding stone. There is a sense in which people would aspire to own electronic appliances, not only as a labour saving device, but also as a status symbol, and Survey 1999 found that households aspired to acquire particular consumer durables, like radios, televisions, refrigerators, cars etc. From a sample of 2,313 urban households, the percentage possessing the various consumer goods in descending order is as follows:

> Radio (77.6%); Electric fan (65.0%); Television (52.7%); Electric iron (50%); Refrigerator (33.6%); Private car (14.6%); Motorcycle (13.9%); Gas cooker (10.2%); Bicycle (9.8%); Telephone (5.3%); Canoe/boat/ship (0.2%); Animals: Donkey/horse/camel (0.1%).

The pattern of goods ownership is very high for the cheaper and leisure goods (radios, television, fan), and less for the more expensive domestic electronic appliance (fridge and gas cooker), which in a sense also hints at a gender bias in the priorities of household purchase, as the fridge is more likely to benefit the kitchen, and by extension, the female.

Food: Diet and nutrition

Status foods

A study carried out by Ojofeitimi & Olufokunbi (1986) on food preferences and nutrition at the Obafemi Awolowo University, Ife found that people's preferences for food was not based on its nutritional qualities but on the status and perception of the food as that of the rich and concluded that lack of information on the nutritive values played a greater part in the problem of malnutrition in developing countries than poverty. As such, the status of food relates more to its economic value than its nutritional value.

The status food issue has also been attributed to Nigeria's colonial past, which suggests an inherent aspiration for a Western way of life, which would include diet, clothing, and education. Industrial-packaged foods and canned foods are much desired particularly the more expensive foreign brands even where there are indigenous alternatives. Condensed evaporated milk, wheat bread, and breakfast cereals are much desired ready-to eat foods that save time and labour, but are also mainly foreign imports. The attitude to status foods is illustrated in following quotation from the memoirs of the Nigerian-born 1986 Nobel Laureate for Literature, Wole Soyinka, of his childhood in the 1940s Abeokuta, entitled "*Ake. The years of childhood (1981 page 78),* in the description of his mother's bedroom:

> *"… everything else in the bedroom was resolutely, even fanatically set against order or permanence in any form. Bundles were piled underneath the bed, baskets of soap, trayloads of tinned sardines, pilchards, packets of sugar, bolts of cloth, round camphors and square, leaf-wrapped parcels of shea-butter or black, local soap. Jars of sweet, home-made and imported, such as Trebor mints, rested on the window-sills side by side with odd pamphlets, bibles, hymn-books and tattered books. Tightly sealed tins of kerosene, palm-oil, groundnut-oil, enamel bowls of gari, beans and dried corn were stacked in a corner… . my father would come into the room in search of something, look around, give up and go out shaking his head in patient despair…"*

Soyinka (1981) described here, the home of a literate, monogamous headmaster and his wife with four children, with several resident wards and domestic helps. She had a house with designated living rooms, bedrooms, and kitchen with pantry, and did not share it with any other household. She did not have to contend with the rivalry and paranoia of co-wives in a polygynous set-up. She however chose to keep several items, particularly food, in her bedroom. The foods she kept were non-perishables, and in particular, ready-

to-eat foods like canned sardines, gari, and sugar, perhaps to control accessibility to it, and to guard against wastage by the several people living in the house. She kept other foods like her baby's powdered milk, yams in the pantry, which were groceries she had either forgotten about or did not feel anyone could take without her noticing it.

Food of animal origin

Animal based proteins tend to be expensive and are therefore mainly consumed regularly by the rich or only at ceremonial or festival occasions. There is also the consumption of game commonly called "bushmeat". Though this may be ready food for people in rural areas, they would rather sell it to the city dwellers because they generate more money from that. (Falconer & Koppel 1983). Fresh fish is eaten regularly by people who live in freshwater riverine areas, but the fishing is still very much on a small subsistence scale. Transportation and preservation difficulties constitute a challenge for sale in urban markets. Imported frozen fish from the Scandinavian countries constitute the majority of fish consumed.

Drink

Water, not surprisingly, is the most consumed drink, and it is very much a feature in houses to have jerry cans and containers for storing water as contingency in event of water shortage. Cocoa bean beverages account for as much as 80% of hot drink consumption in urban areas, and some brands of tea grown in Nigeria are also taken as a popular drink. The brewery industry is reported to be one of the fastest growing branches of manufacturing industry in Nigeria and there are now 32 breweries in Nigeria producing more than 40 brands of beer and about 10 brands of malt based drinks. Beer is drunk mainly by men recreationally and at ceremonies.

Food, nutrition, health and gender

Some cultures have an underlying concept that female fecundity is directly proportional to fat reserves. This has also been linked to high incidence of obesity and diabetes in Native American women. An engaged Efik woman from the Delta region in South-Eastern Nigeria undergoes a "fattening" ritual to prepare her for marriage. This is perhaps one of the ways culture shapes people to have a predisposition towards certain diseases. Nevertheless, women tend to be generally undernourished in relation to men, and in some places, pregnant and lactating women, who require the same calorie intake as the men, are

deprived some nutritious foods regarded as taboos. Also, men get the first choice of the family's food. Furthermore, in developing countries, artificial feeding rather than breast feeding is associated with higher maternal education and socio-economic status. Within families, the consumption of animal based proteins (meat, fish, eggs) reflect age and gender differences, and this is more pronounced in times of food scarcity. (Brown, Inhorn, Smith 1996, Quant 1996)

Culinary Activities

Yoruba culinary activities are cooking, food preparation and food processing Cooking, i.e. transformation from the raw state, involves boiling, steaming, frying, deep frying, roasting, grilling, cooking in a sauce or stewing, cooking in a frying pan or sautering and broiling. (Levi-Strauss, 1966; Revel, 1992). The Yoruba do not bake any indigenous foods, so ovens are only used for making foreign foods such as cakes and biscuits.

Food preparation activities include grinding, mashing, kneading in hot water pounding, and sifting. "Food preparation" requires a "hands-on" contact with the food, and constitutes most of the work carried out on the worktop or kitchen floor as in the case of making *okele* foods like "eba" and pounded yam described below.

Food processing takes place when food is transformed from the raw harvested state to an intermediate state for cooking which involves – soaking, threshing, winnowing, grinding, sifting, fermenting, and drying. Food processing is the most time consuming and labour intensive of the three, and may involve the use of outside spaces in addition to an internal cooking space. This is particularly relevant to the making of cereals – bean paste and corn/maize paste described below.

Methods of food preparation

The Yoruba cuisine can be grouped into four main categories, namely (a) the foods cooked in-situ, (b) the dumpling-meals, (c) the cereals-derivatives and (d) the stews/sauce. The following diagrams show how culinary activities are spatialised by indicating the movement patterns with respect to the some standard recipes. The circulation goes from the sink, cupboards, fridge, cooker, worktop and floor etc, and in some instances, has movement to external premises, such as to the commercial mills. (See Figs 3.12 & Fig 3.13 & Fig 3.14 - typical recipes being prepared in the kitchen)

Foods cooked in-situ refers to grains such as rice, legumes – beans and tubers – yams, cocoyams and cassava, which are boiled, fried or cooked in a sauce. They are the easiest to make, the least labour-intensive and the most expensive.

The dumpling-meals – *okele*- (Fig 3.12 a & b) are made from cassava or yam flour and eaten with a vegetable sauce and stew. These food products have undergone some transformation after harvesting before making their way to the marketplace and the home. Cassava flour (*fufu),* cassava grains *(gari)* or yam flour (*elubo)* are ladle-kneaded in hot water to make a dough-like meal, which is then eaten with a stew. Pounded yam is made from pounding boiled yam in a wooden mortar with a wood pestle to give yam dumpling called *iyan*. The dough-like meals or *okele* foods require more hands-on contact with the food than the *in-situ* meals. *Okele* foods are eaten and served hot, because they become inedible as soon as they cool, and cannot be reheated, so they tend to be prepared close to the time for eating.

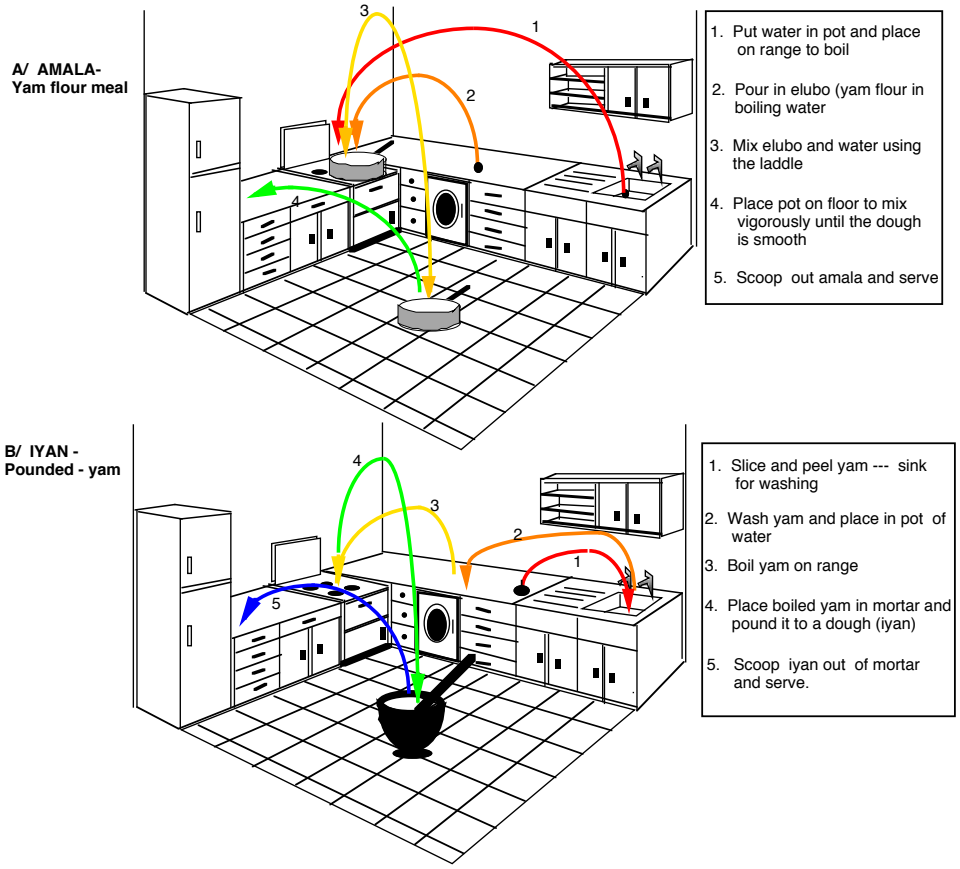


Fig 3.12 – Dumpling meals preparation (Source: Author's sketch)

The cereals-derivatives (Fig 3.13 a & b) are made from ground beans, peas, corn and maize. The beans, peas or maize are shelled, cobbed, soaked, grounded and sifted to produce a paste. Bean paste is either steam-cooked to make *moin-moin* or fried in oil to make *akara* or fried bean balls. The maize and corn pastes are made into a drinking pap called *ogi* or a hard pap wrapped in leaves called *eko*. Cereal-derivatives are the most time-consuming foods to make and require several stage processes and a variety of skills.

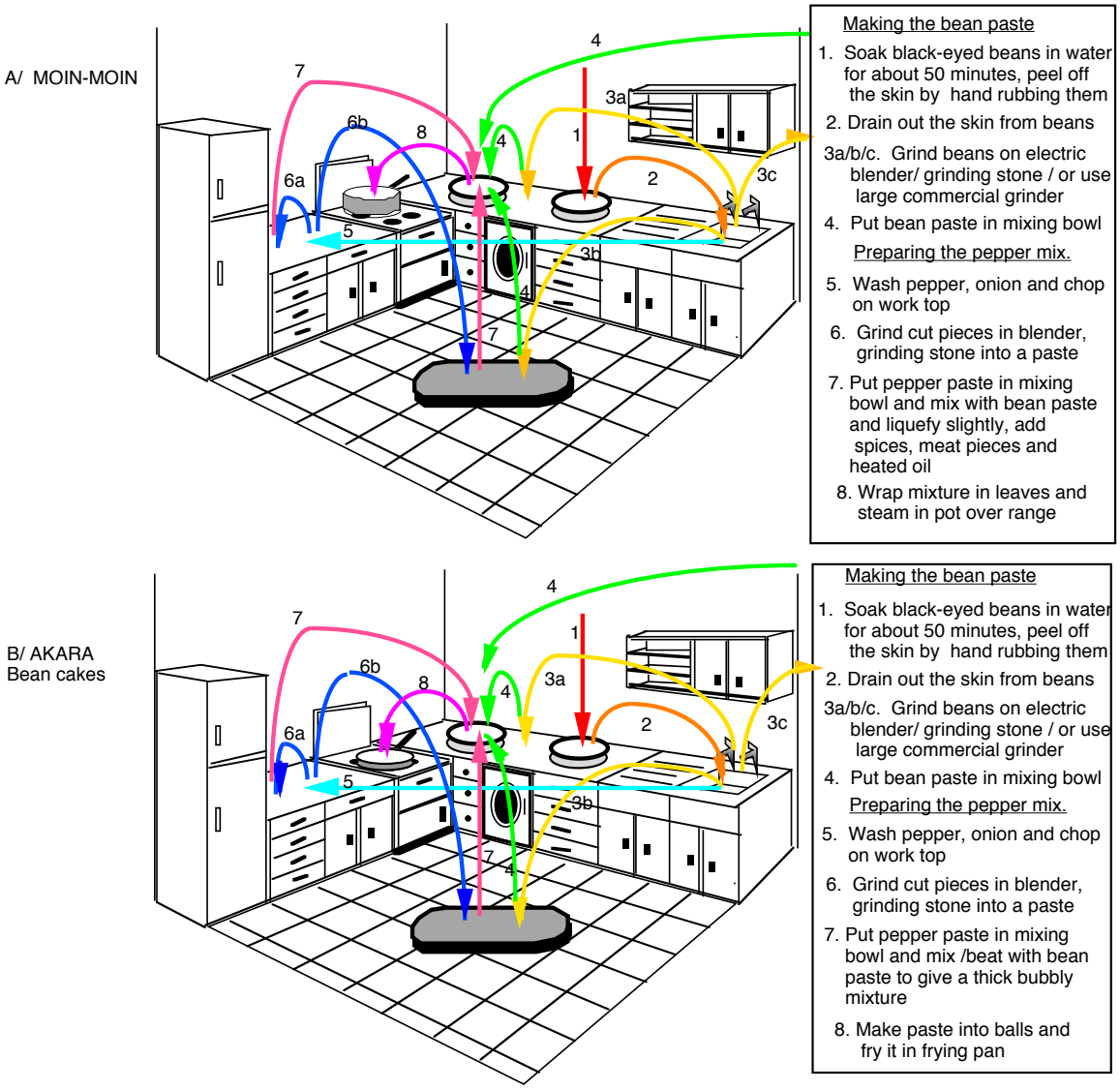


Fig 3.13 – Making of cereal-derivative foods (Source: Author's sketch)

Two main types of soups/sauces (Fig 3.14 – recipe of stews & sauces) are eaten with the rice dishes and the *okele* foods, namely vegetable soups, and red pepper stews. Green leaf vegetables, okra, melon seeds and nuts are stewed in oil and peppers with bits of dried fish, prawns and local spices. Red pepper stews are made from ground peppers, onions and tomato and stewed in cooking oil with spices and salt. As they are eaten with every food except the cereal derivatives, they are the most important food item to prepare and are perhaps the last task any housewife would delegate. Once cooked, unlike the others, they can be reheated for later meals, so they can be kept in fridges or soup cupboards.

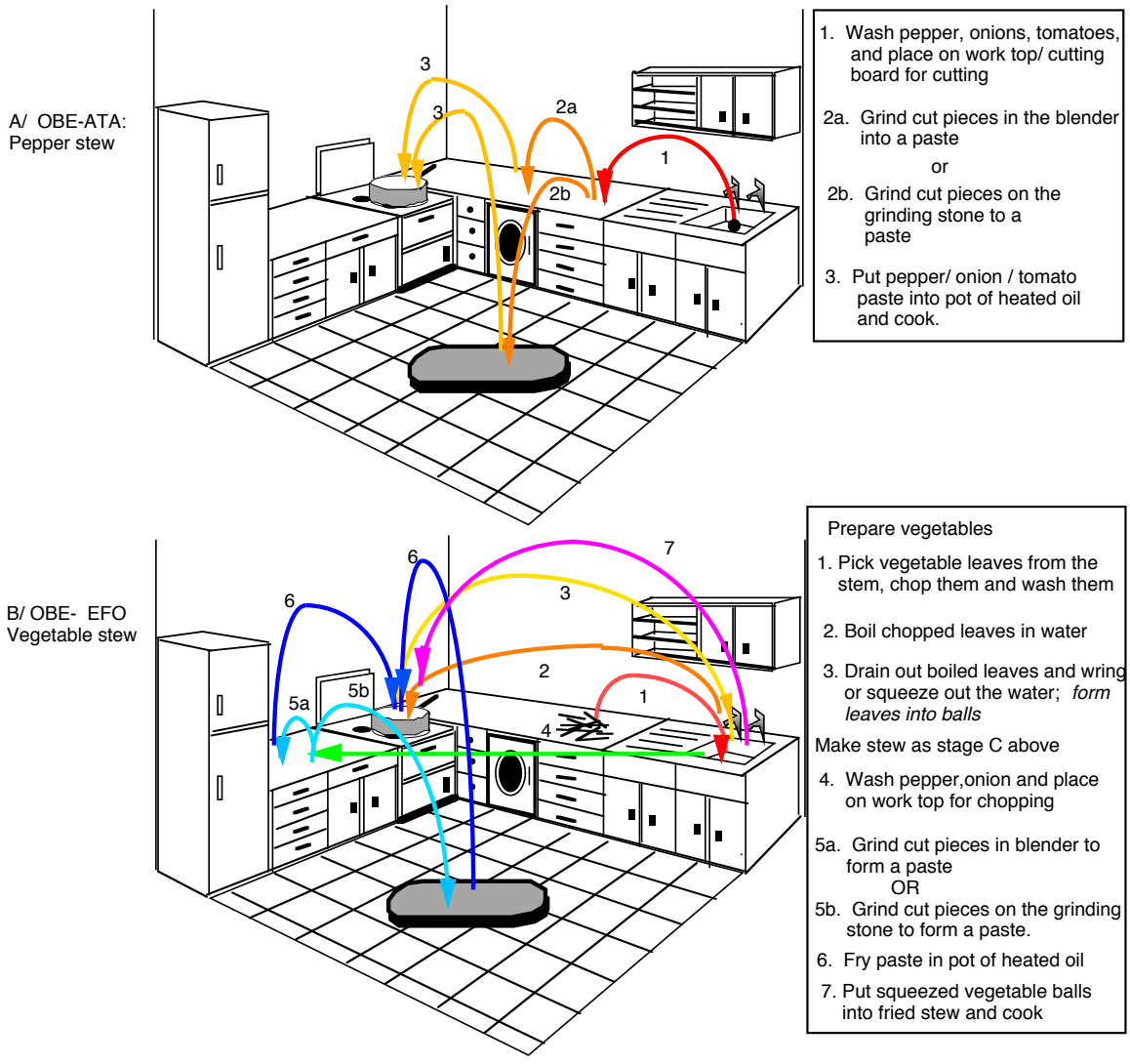


Fig 3.14 – Making of pepper and vegetable stews (Source: Author's sketch)

The indigenous Yoruba palette tends to be savoury more than sugary. The sugars eaten tend to be those available in nature, such as from sugar cane, other fruits and dairy products. Fruits are eaten raw and they do not tend to be made into pies, cakes or biscuits. Dairy is available in the form of condensed evaporated canned milk, or powdered milk, and local cottage cheese known as *wara*. Meals consist of a single main course without appetizers or desserts. The main drink is water, usually pipe-borne. Alcoholic beverages, beer and palm wine are drunk by the men, though fizzy soft drinks are drunk by anyone who could afford to. Ready-to eat foods tend to be Western imports particularly canned or bottled foods and drink such as breakfast cereals, sardines, baked beans, powdered and evaporated milk, tea, coffee, which can be preserved long-term.

Other Culinary Activities

Other culinary related domestic activities include eating, dishwashing and ceremonial cooking. The table below shows how this is distributed generally:

Table 3.3. Chart for culinary related activity

	reward	labour			
	Eating	**Cooking**	**Dish-washing**	**Food-processing**	**Ceremonial cooking**
Time interval	**Daily**	**Daily**	**Daily**	**Occasionally**	**Occasionally**
Household Involvement	Whole household	Task usually allocated to particular members of household, on grounds of gender, age, and patrilineal gender			
Degree of Messiness	Less messy	Messiness increases from left to right (plus increased tendency to use outdoor space			
Work	Consumption	Production labour increases from left to right (plus increased tendency to involve more people)			

From the table, eating lies on the opposite side to cooking, dishwashing, foodprocessing and ceremonial cooking. Eating benefits from the labour of food preparation and it is a clean activity, and this makes it the highest status activity. Dishwashing lies at the opposite side of the spectrum as sheer labour and it involves the cleansing of the leftovers of eating and foodpreparation activities, and this makes it the lowest status activity. Cooking, foodprocessing and ceremonial cooking lie between eating and dishwashing and they involve skill in performance.

The impact of energy source, infrastructure and technology on culinary practice

Food preparation processes help to illustrate the difficulty faced by households particularly in terms of the deficiency of basic utilities and infrastructural facilities in Nigeria.

The fuel used for cooking determines how much time is spent on housework, starting from the collection of the fuel, cooking times, and even the diet. As not all households have access to a gas, electric or kerosene stove, the time spent fetching firewood constitutes part of the cooking time. Likewise, the time spent fetching water would ordinarily prolong the working day and determine how much water is used for other cleansing purposes. In this sense, the presence or lack of infrastructural facilities will have an effect on the outcome of the study. A wide range of fuel sources are used in the developing countries, from electricity, to gas, kerosene, coal, firewood and sawdust, depending on individual economic capability. Poorer people can only afford a stove or range with one or two burners, which means that cooking takes place in a single sequence, further prolonging the time spent cooking, and would in effect, regulate diet choice. For instance, a dumpling meal would require boiling water, which in the absence of say an electric kettle, would mean pot-boiled which takes 10 – 15 minutes longer. An accompanying pot of stew takes two hours to prepare (one hour with modern electronic appliances) but can only be preserved short term (up to three days) without refrigeration. It can be derived from this that the availability of infrastructural facilities and utility (pipe-borne water, plumbing, drainage, electricity, refrigeration, cooking range) could significantly reduce the labour expended in food preparation, although, it has been found that labour-saving devices do not result in people spending less time overall in the kitchen, as surveys in modern homes show that the standards just increase as people find other domestic activities to occupy the time saved (Bilton et al 1987).

Furthermore, the use of kerosene stoves and firewood results in deposits of soot on walls, which could make the kitchen unattractive and incompatible for other activities. Therefore, the study will inquire about source of fuel and infrastructural facilities present in the kitchen. Access to pipe-borne water for a large percentage of the population is outside of their home environment and even for those who have it, is irregular. The "Survey 1999" found that several homes use wells, streams and rainwater as contingency supply; 25% of households have access to pipe-borne water either directly into their homes or through a public tap; more than 40% of households used water from a well or borehole; and 25% used surface water (river, pond, dam), which is most subject to contamination. Within the urban areas, there is a significant imbalance in the distribution in that only 10% have their homes connected to water mains, and the majority are served by public standpipes and selling stations. The average per capita volume for the nation was 60 litres

per day, yet the minimum for temperate climates is 115 litres per day. Even then, only about 19.29% of the households in the Oyo and Osun states had this water requirement met. About 74.2% of urban households live up to 15 minutes away from the water source. Households also suffer water shortage in the dry season, or when there is electricity failure to operate the water treatment equipment at the plant, and sometimes for no clear reasons. In terms of sanitation, the data also show that 8% of households have their own water closets, 4% share WCs, 54% have traditional pit toilets and 26% have no toilet facility.

Electricity supply is inconsistent such that people no longer use fridges and freezers to store up several months supply of perishable foods. The Survey 1999 claims that on average, 45% of households in Nigeria have electricity, with 84.3% in urban areas and only 14.9% in rural areas, such that this imbalance indicates that electricity can be seen as a symbol of standard of living. The use of open gutters and the lack of plumbing and drainage facilities for many homes contribute to the poor living conditions.

SUMMARY

This chapter has given the background information to the study area. The first section on housetypes looked at the floor plans of the houses and identified the key culinary spaces in the typical houses. The second section looked at how status, solidarity and social mobility are determined within Yoruba society and described features of the Yoruba household structure and economy. The third section focussed on culinary practice particularly, culinary objects, food and activities in order to direct the discussion onto culinary practice and the kitchen.

Chapman (2004) claimed that households tend to negotiate their individual domestic practices to suit being fully cognisant of the social principles of their society. Likewise, it can be argued that Yoruba households will choose to follow or deviate from the accepted norm to varying degrees depending on the demographic makeup of the household, the stage of the development cycle of the family, their socio-economic access to resources, and whether households share their spaces with other households or strangers in which case they may have an audience to their personal practices.

In the next chapter – Research methodology, the procedures and materials to be used in the study will be presented.

IV Research Methodology

This section describes the procedures and materials employed in the study, and it consists of a description of the sample, the sampling techniques and restrictions in selection, the analytical tools that were employed and the tests that were carried out. It also includes an introduction to the study area as well as marked-up maps indicating which houses were selected.

OVERVIEW

This study is carried out using the "between-subjects" approach, which looks at variations between subjects at a single point in time, as opposed to the "within-subjects" approach, which looks at changes in the same subjects over time and circumstances (Cone and Foster, 1993). The argument so far has been that status is signified by distinction and separation into a recognised boundary, solidarity by cohesion and spatial co-presence, and social mobility by fluidity in the mobility across the borders of status and solidarity grouping. The argument has also stated that the kitchen has to be broken down into culinary mapped spaces where activities take place and the locus for the source of heat, water and storage of culinary-related equipment and the storage of food.

RESEARCH STRATEGY

The main strategy for this study was to use a combination of ethnographic and morphological approaches to the study. Ethnographic studies allow access inside another culture or sub-culture, to see where lifestyle nuances differ, and this is particularly necessary to comprehend culinary practice from the perspective of the respondent households, where lifestyle choices become more evident in their daily routines. The researcher was brought up within the culture, lived in this area for more than twenty years, and has an emic (insider's) experience of the of the study area from a cultural and social perspective. Ethnography also has the added advantage of reducing misconceptions and misinterpretations of observations, as the researcher is able to clarify the meaning of things observed or heard with the respondents. The morphological aspect of the study was analysed using the space syntax techniques because it provides objectivity in analysis, and

it is neither restricted by social classifications as in semantic approaches, nor is it limited by space labels. Other merits of the strategy is that by undertaking an intra-cultural comparative study within a sub-culture of a single ethnic group i.e. culinary practice in Yoruba domestic space, the study is equipped to focus on comparable activities and materials to explore and reduce the distraction of cross-cultural variances in interpretation.

In order to address the research questions about how status, solidarity and social mobility are manifested in domestic space, the study requires information about the following aspects of culinary practice and domestic life:

- Persons: Information was required on the personnel involved in culinary activity and culinary related work in the home. This included questions about the role allocation, delegation and authority on the grounds of gender, order of birth, seniority, culinary skill, competence, and male involvement in culinary related activity.
- Activity: This included five culinary-related activities, which consisted of three regular activities, namely cooking, eating and dishwashing, and two occasional activities, namely foodprocessing and ceremonial cooking. The aim was to find out where these activities took place in terms of dispersal of culinary footprints over many spaces, or concentration of activities to one space. The purpose of this information is to understand how the households applied rules of spatial and sensory proximity to enable compatibility and incompatibility between activities taking place within the same spatial boundary, and in adjacent spaces where there is little or no sensory i.e. visual, physical, auditory and olfactory separation.
- Objects: This consisted of information about the household's material culture, in terms of their possession of traditional equipment, electronic appliances, which could be technological aids or status symbols. Data was also required about the place of storage of these objects in terms of security, convenience, ease of retrieval, display and the distance from storage to the place of use.
- Food: This consisted of information about food consumption choices and the place of storage and preservation of foods either in the raw or cooked state, imports and canned foods also in terms of security, convenience, ease of retrieval and step distance for retrieval to the place of use.
- Space: The purpose of the spatial data was to map on the floor plans, all the 'footprints' of culinary activity, storage of objects and movement to the place use, and storage of food and movement to the place of consumption, in order to understand

how culinary practice is distributed in the domestic space, both internally and externally. It was also used to assess spatial co-present occupation of activity, objects and food, their movement across spatial boundaries and the use of boundaries to differentiate or separate particular activities, objects and food. Space syntax techniques were used to measure the distribution patterns in terms of space convexity, permeability, visibility, sensory proximity, step depth, integration and segregation of the culinary mapped spaces in order to address the research questions.

A qualitative research approach has been chosen for the major aspects of this study, particularly in the survey, the data collection, collation and interpretation, because the study was designed to gain an understanding of the households through an in-depth analysis of their practices and their reasoning. as the study data consists of several intertwined and interconnected variables that will benefit from an 'emic' approach i.e. insider's point of view for interpretation and contextualization. The information collected during the fieldwork is rich, first-hand, varied and original, therefore it is vital that the contexts of discussions and interview are recorded and considered when collating and interpreting the data. The field data was collated and grouped based on similarities of the responses and transferred into a database for comparing nominal variables and cross-checking correlation trends, and in that way, a quantitative technique has been employed as part of the analytical process.

Additional analyses that were carried by the quantitative process included the use of cross-tabulations to analyse trends of behaviour in numerical terms across the study areas (De-Vaus 2002), such as statistical ratios of trends in household's attitude of parent/child or male/female participation in culinary related activity. These data were enumerated, and it is possible to discuss them in quantitative terms.

In overview, the research strategy is given as per Table 4.1 below, which shows how each of the sociological concepts have been operationalised. The table summarises the definition of terminologies, and the ideas that will be examined with respect to each concept.

	STATUS	SOLIDARITY	SOCIAL MOBILITY	DOMESTIC SPACE
Definition	- Social position occupied (family, gender & occupation)	- Collective consciousness, cohesion, common interest	-Movement between levels of social hierarchy	-Household environment /food preparation spaces
Types	Ascribed or Achieved	Mechanical, organic, solidary ties, emphatic etc.	Intergenerational, intragenerational	Shared or self-contained
Markers	Roles accompany status	Pivot, focus	Fluidity – ease or resistance	Culinary mapped spaces
Determines	Who gets what?	Including whom?	Who can be included?	Source of water, heat, object, food
Signifiers	Distinction / Difference	Cohesion / Similarity	Transformation/ Change	Space labels / Culinary mapped spaces
Proponents	Weber, Marx	Durkheim, Fararo, Doreian	Goldtho rpe, Erikson	Lawrence, Hanson, Douglas
Operationalise	Distance/separation	Co-presence/ compatibility	Boundary integrity /porosity	Orowa, Rooming, Modern

Status, Solidarity, Social mobility with regards to persons, activity, object, food and space

Rapoport (1990) – "Who does what, where, when, including and excluding whom?"

Persons	Gender, Seniority, skilled, unskilled, occupational head and 2nd head	Female link, patrilineal gender	Male involvement, audience effect	Household-extended, multi, single family
Activity (eating, cooking, dishwashing, foodprocessing, ceremonial cooking)	Routine, skilled, male involvement, role allocation and authority	Compatibility of activities in close proximity, sensory proximity	Clean, messy, hazardous activity, plumbing and drainage, electricity	Multi-functional space, dispersal of activity over many spaces
Object (traditional eqpt, electronic appliances, implements, facilities)	Status symbol, utilitarian, mode of storage/ display	Control, convenience, predictability/ frequency of use	Economic/social value, level of accessibility	Storage/ Retrieval
Food (raw, cooked, imports, indigenous)	Status foods, skill in food preparation	Means of preservation, transformation	Refrigeration	Storage / Retrieval
Space Syntax	Step depth	Convexity	Permeability, visibility, sensory proximity	Integration, segregation
Status, solidarity & social mobility	Re-segregation	Convergence Association	Divergence	

Table 4.1: Summary table of definition of concepts

SURVEY DESIGN

All respondent households were selected from a single town and this had several practical advantages, firstly that it was easier to travel between the areas and carry out the study on a daily basis, secondly, it was sizeable enough to carry out the in-depth study required that it would be easier to make comparable assessments as to the effects of local and regional conditions experienced by each study area, and thirdly, the town had a broad spectrum of dwelling styles dating back to pre-19th century period to the modern day and of households that belong to different parts of the socio-economic strata.

The fieldwork was carried out between the times of 10am to 2pm on Monday to Friday in Enuwa and Akarabata areas, because it was found several respondents had more time to settle down and discuss with the researcher before their children returned from school, at which time they had to start getting ready to prepare the evening meal. Some households were surveyed on Saturday, between 10am to 5pm, by appointment, particularly where the respondent knew there would be more people at home then they would not feel vulnerable speaking to strangers on their own. Households in the university campus were mainly surveyed in the evenings after working hours, i.e. 6pm onwards, because they knew the researcher, and it also was convenient for them. Annotated floor plans of the house, kitchen layout and grounds was drawn and the interview was guided by questionnaire. The exploratory study carried out by Ekundayo (1988) brought up several questions that help guide the types of questions included in the questionnaire in the current study. The questionnaire consisted of closed-ended and open-ended questions and a section for notes.

The interview was conducted in the Yoruba language for some sections of the sample, which required the translation of some terminology and concepts. In some instances the response was also recorded in Yoruba to ensure that the context was not lost in translation. One household member was interviewed in each house, and one household was surveyed in the rooming houses. It was observed that there was a reluctance by the male members of households to act as respondents when any female member was present or available, particularly because some of the questions related to culinary practice, which they maintained was the domain of females. A copy of the questionnaire is in Appendix A.

THE FIELDWORK AND THE STUDY AREAS

Seventy-five households were selected from three distinct geographical areas of Ile-Ife, namely Enuwa, the traditional core, Akarabata in Lagere, the business district and the Obafemi Awolowo University staff residential quarters. (See Map of Ile-Ife – Fig 4.1)

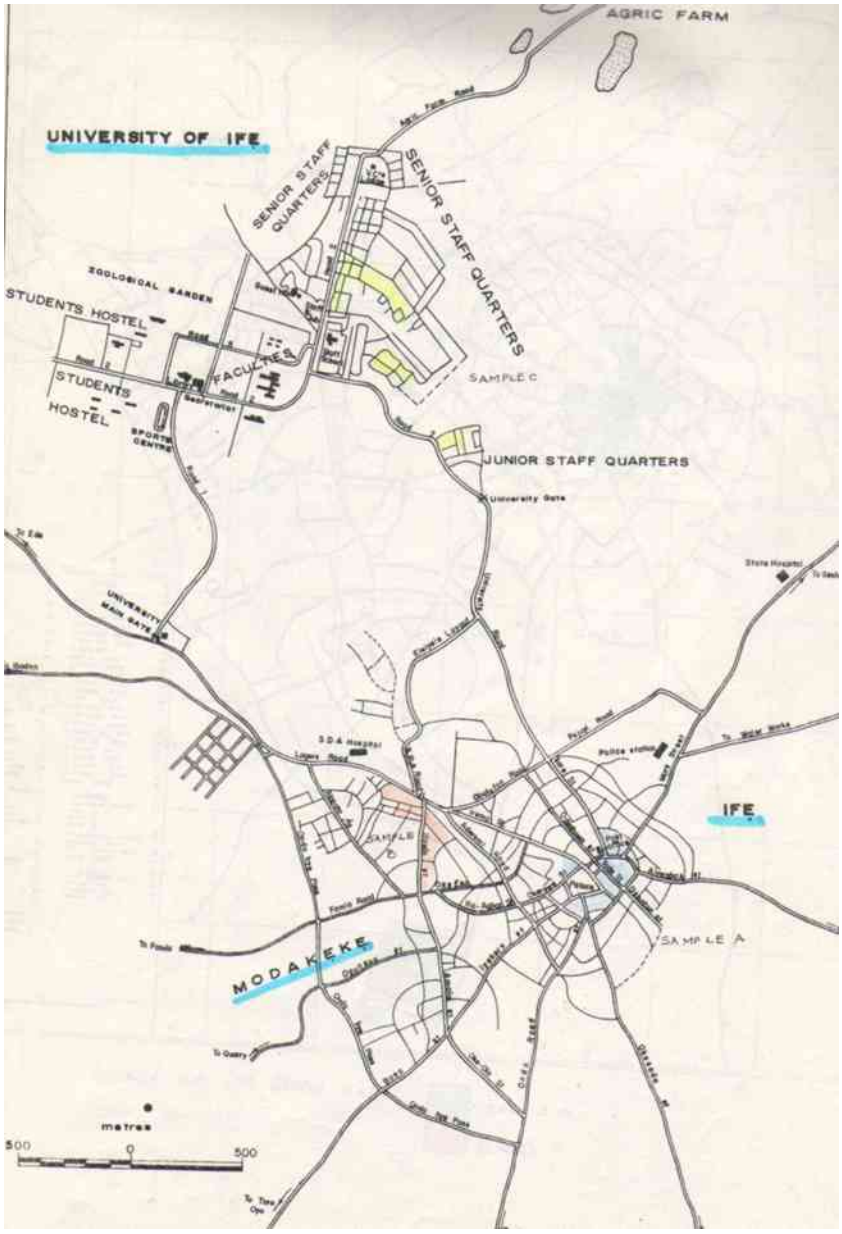


Fig 4.1: Map of Ile-Ife, Oranmiyan Local Government Area

Ife, Modakeke and the Obafemi Awolowo University have been described as the three components of Ile-Ife. The respondent households in the study have been selected from each of these areas. The distribution of housetype per area as per Table 4.2 below:

	Orowa	Rooming	Modern	Total
Enuwa	19	6	0	25
Akarabata	1	24	0	25
Unife	0	0	25	25
Total	20	30	25	75

Fig 4.2: Table showing the distribution of housetypes in each study area

The households were labelled on the survey maps from No 1 to 75, with a prefix of 'A' for Enuwa, 'B' for Akarabata and 'C' for Unife(i.e A01 to A25, B26 to B50, C51 to C75) for identification purposes only. These houses were then re-distributed into groups depending on housetypes i.e. orowa, rooming and modern, for analysis, synthesis and discussion, but the identification label was not changed in order to ensure that each house could be re-identified in event that the study needed to be replicated.

Samples were selected from each of the following areas:
The ancient city of Ile-Ife (Zone A) – Pre 1875 (See Fig 4.2). This is the historical, traditional and administrative core area of Ile-Ife and it existed from pre-colonial times. It includes the palace -*afin* of the *Ooni (indicated in yellow)*, the temples and sacred shrines for several deities, the traditional markets, civic institutions, the Local Government Council Headquarters and the Ife museum, home to the famous Ife and Benin terracotta and bronze artefacts. The roads lead radially from the *afin* and Main Square *(Enuwa)* to the periphery, and form chunks of pedestrianised wards within the segments.

Residences here consist of family compounds for the extended families called *agbo-ile.* Each area is divided into wards, for several *agbo-ile* and they do not always have fenced boundaries between them. Agbo-ile houses are owner-occupied via collective inheritance with the land tenure being by common law freehold, though some households let out rooms in their houses to workers in the local government offices.

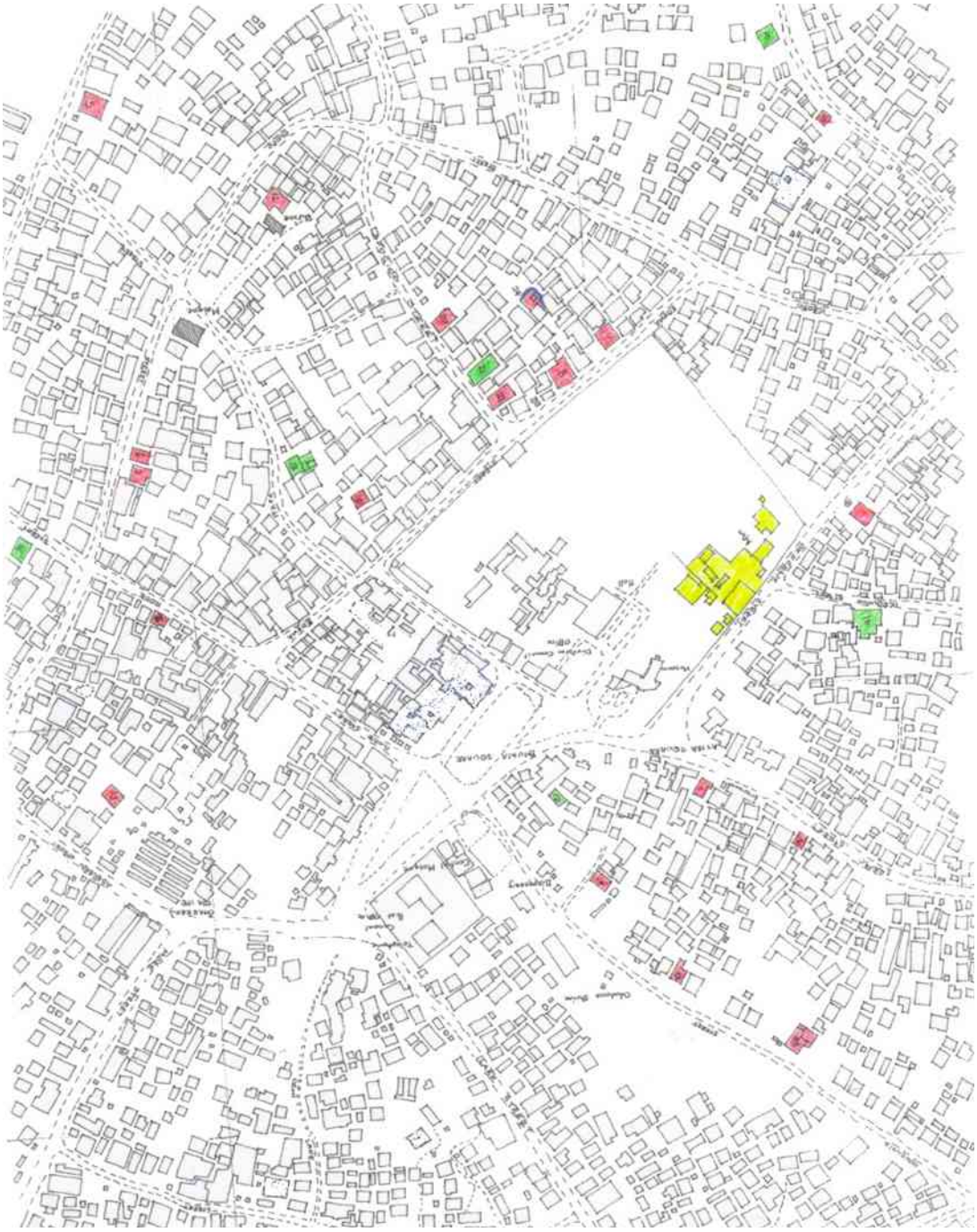


Fig 4.2: Zone A: Enuwa Area Sample Orowa housetypes Afin (Palace)

Sample Rooming housetypes

Fig 4.3 – Photograph of a street in Enuwa area

Being the oldest part of the sample, there were a few surviving courtyard houses in the area. The new generation that inherit the house and land in Enuwa tend to demolish it to make way for a multi storey building to accommodate more people and perhaps let it out to generate rental income. The orowa houses are indicated in red, and the rooming houses are indicated in green in Fig 4.2 above. The houses were selected from several streets within a mile radius of the palace walls. The layout of roads suggest that they would have been routed not cut through the *agbo-ile* in order not to separate families, hence there are variable sizes to the chunks of pedestrianised areas. Only houses facing the main roads have vehicular access and open gutters running alongside the road, whereas, houses deep in the pedestrianised zones had untarred footpaths and wastewater is drained via surface run-offs. Pipe-borne water, electricity and telephone are connected to the mains services by individual homeowners and legislation does not enforce the availability of these facilities within any premises. There is no organised refuse disposal system.

The Central Business District (Zone B): 1950 – 1958. This is the Lagere area (See Fig 4.4), which lies about five miles east of Enuwa area. Lagere (Fig 4.5) is a commercial district mainly for wholesale and retail agricultural produce and import goods, speciality shops, banks, offices, warehouses and petrol stations, a magistrates court, broadcasting station, council offices and a district library. Other facilities include primary schools, churches and mosques and doctors and maternity surgeries. This area is situated close to the boundaries with Modakeke.

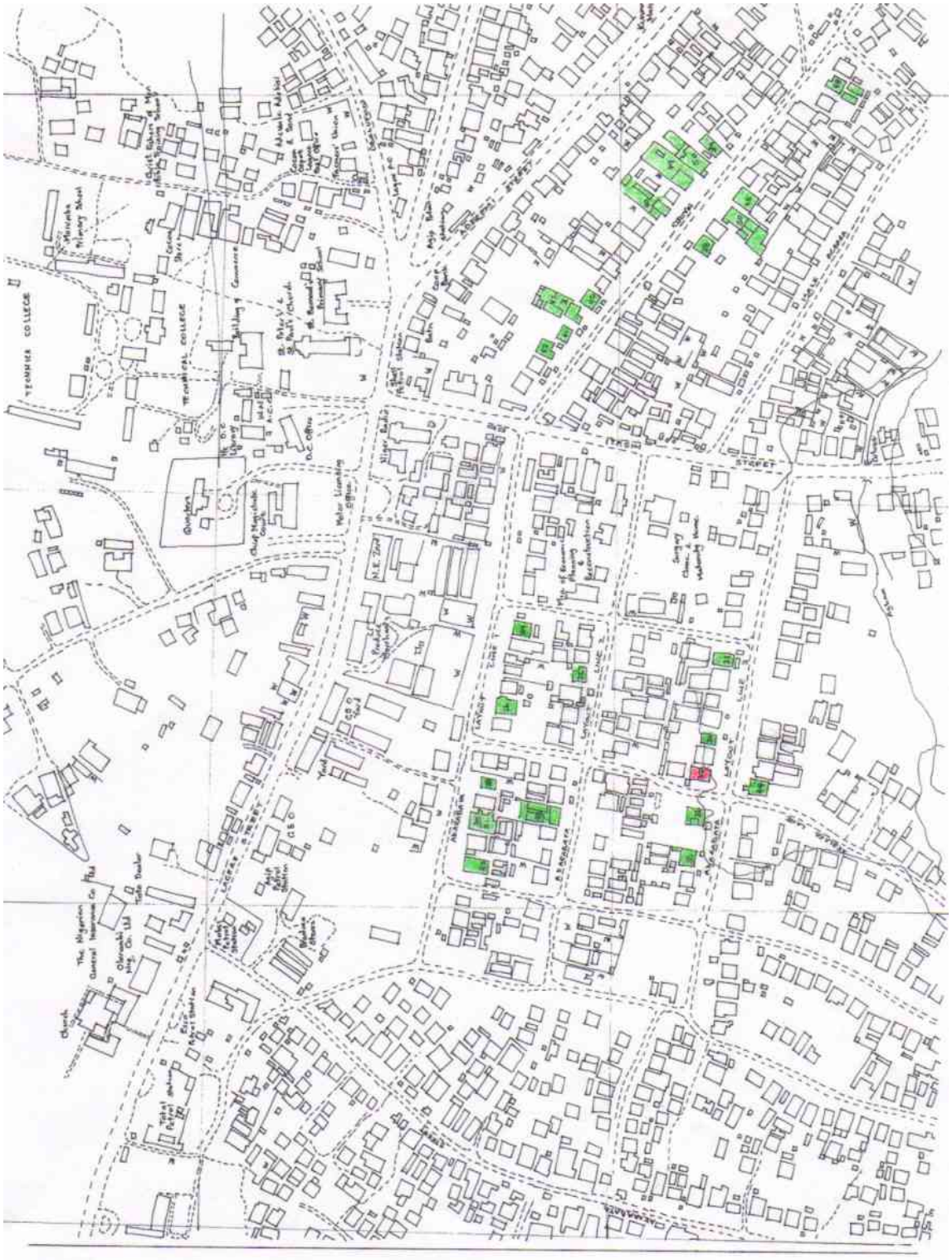


Fig 4.4: Zone B:
Akarabata / Ojoyin Area

Sample Orowa housetypes
Sample Rooming housetypes

Fig 4.5 – Photograph of Lagere

In the 1950s, the urban planning department for Ife town demarcated plots of land for sale and development to private landowners on the condition that they were developed within 12 months of purchase. This development became known as Akarabata Lines 1, 2 & 3, each line referring to a street (Figure 4.6). At this time, banks rarely gave out loans to individuals to develop private property and most people built their homes from savings, whilst living in the family home or rented accommodation. Consequently, in the Akarabata development, only the rich could meet the conditions, and for several, it made economic sense to develop for commercial purposes in order to recover the investment.

Figure 4.6. Akarabata Line 1

As a result, a landlord-tenant relationship emerged and households had to share their accommodation with strangers, and the rooming housetype emerged, called 'face-me-I-face-you'. This provided accommodation for the several migrant workers from other parts of the country, and two-storey developments were favoured for multiple occupation.

Akarabata was developed at the time the local planning department began to issue guidance on space standards for domestic properties. These standards covered room sizes and recommended provision of service facilities such as kitchens, bathrooms and toilets at the discretion of the homeowner. Generally, landlords would choose to provide these facilities if it increased the rental value of their property, but with the limited public utilities available in the area, such ventures were not common. Electricity was connected from overhead power cables, and drainage was through open gutters. In houses where pipe-borne water was not available, residents either used public mains taps situated at the end of the road or had wells dug within their grounds.

Ojoyin is situated on the opposite end of the Akarabata development. This area did not have the same planning brief as Akarabata, so the owners were able to develop them at a lesser pace. As one moves along Ojoyin, away from the Akarabata area, a significant amount of houses are single-storey with setbacks of 1500 – 2000mm from the main road. In Akarabata, several houses had frontyards, boundary walls and gates, which did not exist in the layout of the traditional townscape.

Houses were selected at random from Akarabata Lines 1, 2 & 3 and from Ojoyin. The orowa houses are marked in red, and the rooming houses are marked in green in Fig 4.4 p 106).

The University Staff Quarters (Zone C) (Figure 4.7 & 4.8) 1962 – present. The Obafemi Awolowo University was established in 1962 and moved to the permanent campus in 1966. The university campus was designed to function almost as a self-contained community. It accommodated academic facilities, residences for staff and students, sports facilities, farmlands, electrical plant, supermarkets, police station, bank, post office, health centre, radio station, leisure club, shops, botanical and zoological gardens, conference centre, primary and secondary schools for children of staff and its own dam.

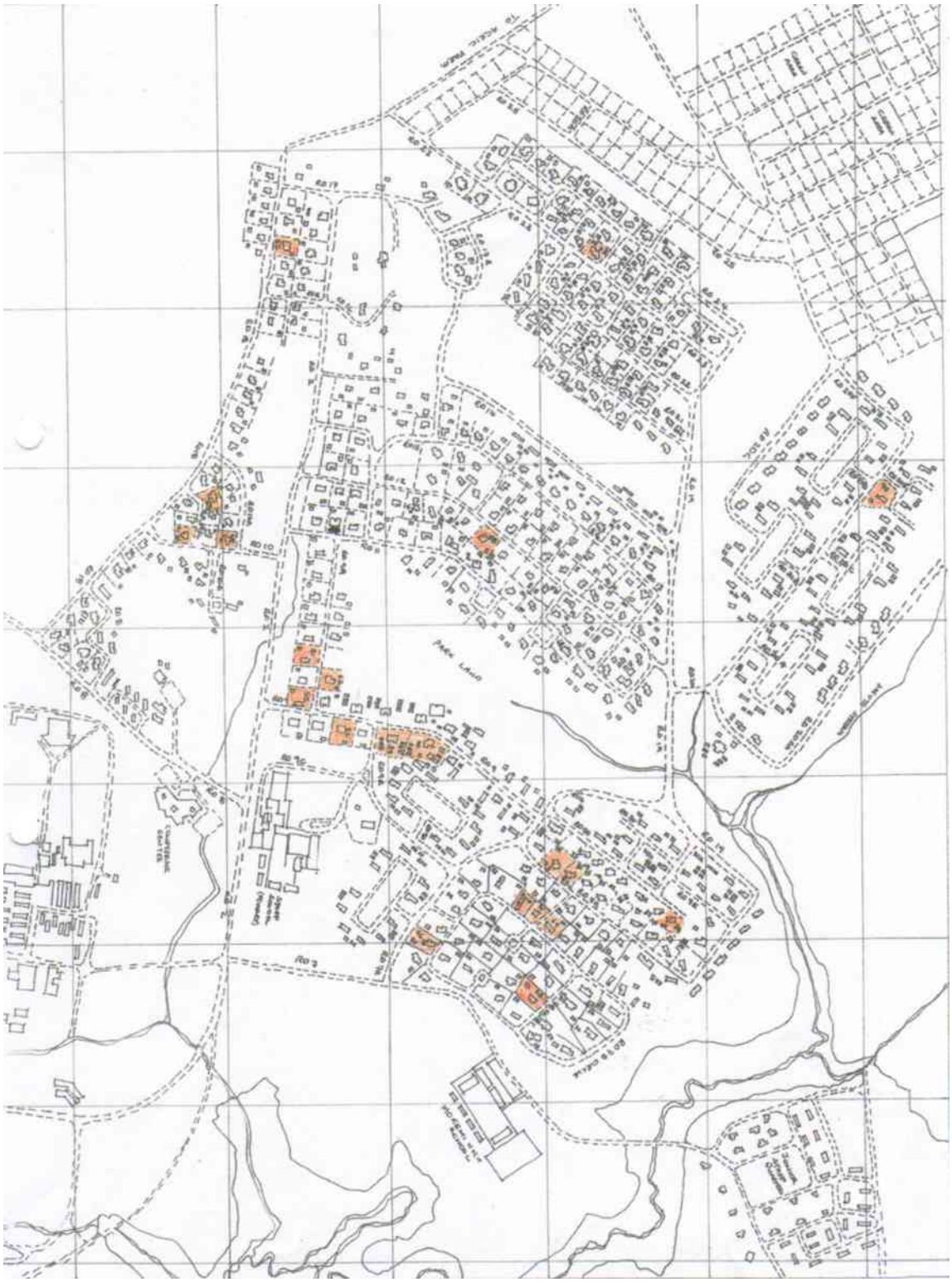


Fig 4.4: Zone C:
Unife Staff Quarters

Sample Modern housetypes

View of the approach to the campus from the Secretariat Building
Source: Unife in Colour (1986)

A type – 3 bed +study :Houses 51 & 52

D type – 3 bed +study :Houses 57 & 58

K type – 3 bed +study :Houses 73 & 74

Flats – 2 bed: Houses 59 & 60

C type – 2 bed +study :Houses 55 & 56

B type – 3 bed +study :Houses 53

Fig 4.8: Photographs of some of the houses surveyed in the study –
Source: Author

The university site extends over an area of 5,606 hectares with another 6,250 hectares acquired for future development. Unife functions as an integral organ in the life and structure of the main town, both as an provider of clerical and manual employment for townsfolk and as a prominent consumer of local commerce and services.

The majority of the residences provided on campus are for students, senior academic and administrative staff and only thirty units were provided for junior staff. All modern infrastructural facilities are present in these houses. They also have outhouses called "Boys' Quarters"(BQ), which is a spatial descendant of British colonial houses. BQ's were self-contained premises the colonial British built for their African servants and families, whom they referred to as 'boys'. Although BQs' are still being built in single-family dwellings, they tend to be inhabited by older teenage sons or relatives who desire some form of independence from the family. Even where servants used BQs, they were rarely married or had children.

Houses were selected according to layout (See Fig 4.7), ranging from two-bedroom flats and bungalows, to three-bedroom bungalows and houses with study, garage or car porch. At least two of each type was selected in the sample.

Comparative Demographic Characteristics Of The Study Areas

The respondent households have differences in the type of tenure of their accommodation, and their living arrangements.

In terms of tenure, the extended compound family households have a right to life-long tenure by birth, and the pivot of their solidarity is the family. Such rights cannot be easily terminated because it is biologically-determined and does not require the consent of others to be acquired. Households in rooming houses or rented flats have a tenancy with a resident or non-resident landlord (pivot), and their tenure can continue for as long as they pay for their accommodation. Households in the university have a tenancy that also is linked to their employment with the university. Their right to that occupation is directly linked to their employment, and not to their ability to pay for the accommodation. Their "landlord" is also their employer, and they do not have a resident landlord but are the most dependent on the pivot, i.e. the university, for their livelihood and shelter. Residents

have a *solidary* (Fararo & Doreian 1998) tie with each other, in that it cuts across the structure (corporate to personal), and it is transpatial.

Another significant feature of their living arrangements, hence their lifestyles, is that residents in Enuwa and Akarabata live in a spatial community and residents in the university campus live in a self-contained environment. There is a sense in which the former may be compelled by their spatial environment to share and act in solidarity with other households because they share living spaces and may find it difficult to refuse help to a neighbour who lives in close proximity in case they may require help in future. In contrast, the campus residents are seemingly self-sufficient, and may have to overcome the constraints of space to engage in sharing, and discussions on relationship with other households came up during the fieldwork.

The geographical area from which the sample was taken to a large extent stratifies the sample along socio-economic and ethnic mix. Residents in Enuwa area are mainly from Ife town itself, whereas residents from Akarabata and Ojoyin have a mix of Ife and Modakeke people, as well people from other parts of Yorubaland, and the university has more people from other parts Yorubaland, (including foreign nationals) as seen in the following table 4.3 below.

Table 4.3: Ethnic distribution of the household in the three study areas

	Ife	Modakeke	Yoruba (other)	Non-Yoruba	Total
Enuwa	16		7	2	25
Akarabata/Ojoyin	5	2	18		25
Unife campus			24	1	25
Total	21	2	49	3	75

The ethnic mix clearly reflects the divisions between the Ife and Modakeke peoples whose relationship intermittently disintegrates into civil war from time to time, such that no Modakeke person lives in Enuwa, and only a handful of Ife people live in Akarabata areas. Such people would be vulnerable in the event that hostilities between the two sides resume. Interestingly, the random sampling did not pick any Ife or Modakeke people in the university for the study even though there are households from these two sides resident on the university campus.

Another demographic characteristic concerns the occupation of the main head and second head of the household. They are distributed according to whether they are employed in the formal sector, which consists of civil servants, teachers, medical personnel, university academic, administrative and technical staff, or the informal sector, which consists of farmers, traders, blacksmiths, mechanics, carpenters, and hairdressers. People are not likely to commute far to get to work, and would mostly live near where they work. Table 4.4 below shows the distribution according to sample areas.

Table 4.4: Occupation of head and second head of household

	Head of household		**2nd head of household**	
Sector	**Informal**	**Formal**	**Informal**	**Formal**
Enuwa	19	6	17	2
Akarabata	17	8	14	6
Unife		25	3	17
Total	36	39	34	25

The table shows a gradual increase in the numbers employed in the formal sector as one moves from Enuwa, through Akarabata to Unife. The population of the second head, which in most cases is the wife, also shows a similar trend, which suggests that Unife households have the most stable incomes.

The questionnaire was divided into seven sections as follows:

- Section One - Demographic characteristics of the sample in terms of age, sex, occupation, household population.
- Section Two - Utilities and infrastructural facilities in the house and kitchen: water supply, power supply, electricity, fuel, plumbing and drainage facilities.
- Section Three – Locus of culinary related activities, i.e. cooking, eating, dishwashing, ceremonial cooking, food-processing and rubbish disposal, in terms of the where they take place, with whom and excluding whom.
- Section Four - Possession, use and frequency of use of traditional and modern implements and electronic appliances.
- Section Five - Location of the storage of food and utensils.
- Section Six - Respondents attitudes, opinions and preferences in order to establish which criteria they employed to assess the spatial compatibility of activities such as eating, dishwashing, laundry, entertainment taking place in the kitchen. This section also queried respondents' attitudes to the allocation of roles according to age and gender.

- Section Seven recorded notes taken down during the fieldwork. It consisted of observation notes, sketches, anecdotal statements made by respondents in order to contextualise the information gathered.

As part of the survey, the site plan, the floor plan of the house and the internal configuration of the kitchen were sketched out on graph paper guided by the 1200 x 1200mm ceiling noggins grid for houses where the floor plans were not available. The position of outhouses, wells, gutters, sheds and positions identified for culinary use was indicated on the floor plans.

In Enuwa area where some houses were not situated at the roadside, it was not immediately clear which was the front or back door. Houses facing the road tend to have verandas and it is common to see people sit out in the evenings, observing what is going on in the neighbourhood. Houses set back from the road did not always have a veranda, as the front door did not open onto any significant access route. Therefore, in order to determine the orientation of these houses, the following criteria were used in the assessment: 1/ the door closest to the main road was taken as the front door; 2/ in instances where the head (father) of the house had his own room, then the door closest to his room is taken as the front door; 3/ where there are service facilities, the door closest to them is taken as the back door.

In the university, the floor plans were obtained from the Maintenance and Capital Projects Division of the university. The space use in terms of items in the kitchens and the location of reservoir tanks, the Boy's Quarters and the entrance drive was mapped out specifically to each site.

It is intended to undertake the following analyses in the study:

a. The spatial co-presence of the basic nodes of water, heat and food storage. This analysis investigates the integrity of the boundaries of the kitchen as a designated space. In other words, the closer the three nodes are to be found within the same convex space, the stronger the integrity of the boundary, and vice-versa.
b. Having argued that the three basic nodes do not give a full representation of the use of the kitchen, the culinary footprints (i.e. culinary related activity and storage)

are mapped onto other spaces in the house indicating how the house is used irrespective of space labels and their implied functions.

c. The locus of culinary-related activities, namely eating, dishwashing, food-processing and ceremonial cooking are mapped on the spatial analysis to study the patterns of distribution.
d. The storage of cooking utensils in terms of co-spatiality and spatial distance or proximity between the cooking space and the storage of utensils is measured to identify spatial compatibilities and incompatibilities of objects.
e. Likewise the storage of food will be analysed to understand what body of criteria are employed when spatial choices are being made.
f. Finally, the use of the outdoor space is analysed in terms of regular and occasional activities, and indoor/outdoor relationship for domestic activities.

DATA HANDLING PROCEDURES AND THE UNITS OF ANALYSES

Quantitative Data

Simple statistical measures of frequencies and frequency distributions have been used to analyse the quantitative data from the fieldwork. The measures of central tendency (mode, mean, median) and the measures of dispersion (range, standard deviation, percentiles and quartiles) were also used for the fieldwork and the Space Syntax configuration analyses. Results have been presented in tables, bar charts and histograms.

Qualitative Data

Questions dealing with respondents' opinions and preferences on role allocation and authority with respect to gender and age, hierarchy, space-activity-object compatibilities, visitor access to kitchen, entertaining friends and so on were analysed as qualitative data. The information gathered here, though it could have been collated quantitatively, was assessed contextually because some respondents tended to qualify their responses. So for instance, two respondents might say that it is the responsibility of both males and females to cook, yet, one of them qualifies the statement by adding that this applied only to single men, whilst the other feels that it applied to all men. The researcher may then clarify if that male cook prepares all foods or only particular meals, and checks the answer with the availability of alternative cooks in the home (i.e. children) in order to ascertain whether the allocation of those specific culinary tasks is gender-neutral or gender-specific.

The recording of verbatim quotation was deemed necessary to portray the ambience of the environment in which the interview took place. For instance, when respondents were asked why they would not carry out their laundry in the kitchen, though several replied that both activities were incompatible because of the cross-contamination of soap and food, a few stated to the researcher "…. *what a stupid question!"* and "*..you learned people (alakowe) must think that poor people have no commonsense at all.."* – signifying that the respondent was aware of a socio-economic class difference with the researcher, and wanted to indicate that they know the "proper" way to act, and perhaps dismiss the grounds for snobbery, imagined, implied or perceived.

There was also an awareness that if the respondent used the term *"alakowe"* to refer to the researcher, it may result in them (the respondent) choosing to give sarcastic or ideal-scenario (and possibly fictional) responses in order to give a good impression. For that reason, some questions were triangulated. In triangulation, the same issue is examined from two different perspectives such as interview with observational data. For example, a respondent who claimed she preserved her perishables by refrigeration had to later clarify that she used a neighbour's fridge when it was became evident that her house did not have electric sockets.

Graphic Data

Annotated floor plans and sketches obtained from the fieldwork were analysed on the basis of their geometric and syntactic morphology, and the patterns of space use for activity and storage were mapped onto them. The houses will be described and categorised based on architectonic features and space labels, style and appearance, overall shape of footprint and its relationship to the site. This includes the distribution of open and covered spaces, the location of outhouses, utilities, and the nature of its boundaries with neighbouring properties.

A typical set of analyses illustrating the process is shown using one of the houses as follows: (See Fig 4.9).

This house is a detached two-bedroom and study bungalow in the university campus. The house has an entrance drive, a car porch and on-site parking for two cars, at the rear and a

reservoir tank next to the entrance drive. The front door leads the entrance hall, and there are three other exit doors to the grounds from the kitchen, the bedroom wing and the living room, and they are used at varying frequencies, and they have distinct effects on how outdoor space is used. The area used for ceremonial cooking is also indicated on the site plan.

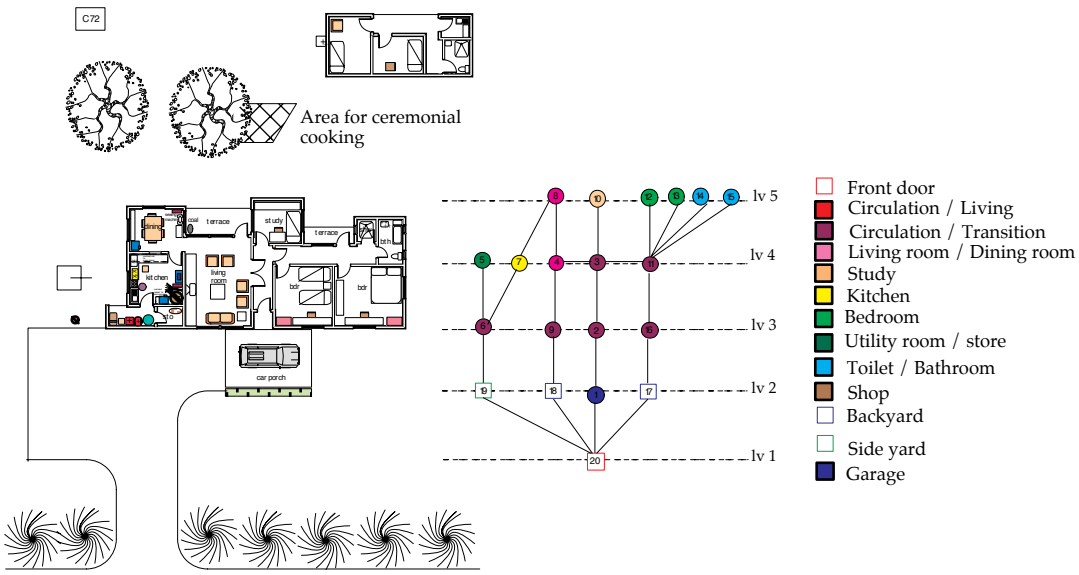


Fig 4.9: Floor plan and j-graph mapped with space labels

Using the space syntax tools, (Hillier & Hanson 1984), the floor plans were analysed, in term of the pattern of integration and segregation (See Fig 4.10), depth and mean depth, distributedness and non-distributedness, of the culinary mapped spaces.

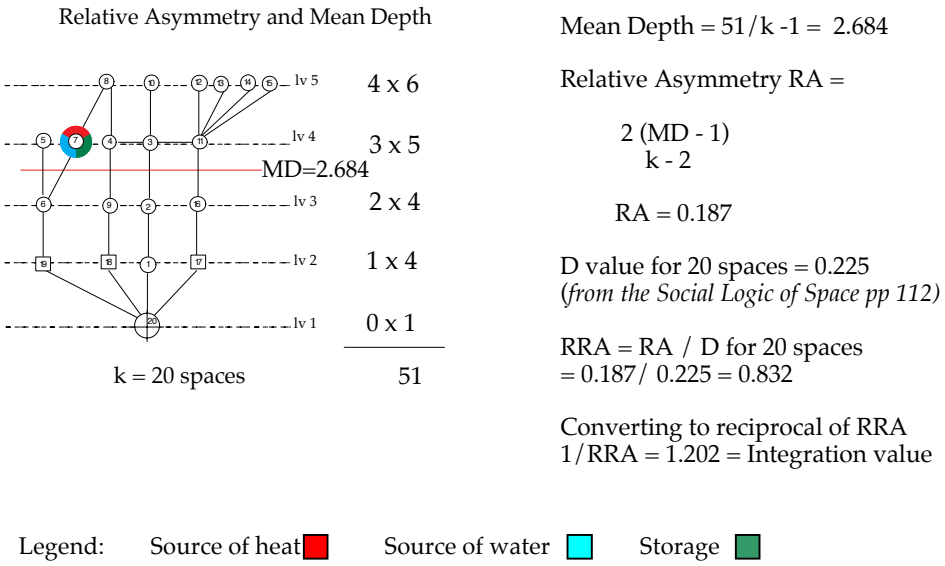


Fig 4.10 – Calculation of Mean Depth, Relative Asymmetry and Integration

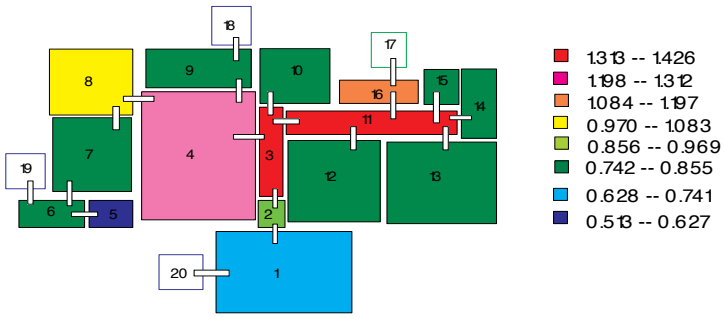


Fig 4.11 above shows the pattern of integration mapped onto the convex break-up of the plan as follows:

The entrance hall is the most integrated space, followed by the living room and bedroom corridor. The kitchen store is the most segregated, and the rank order of integration is as follows:

Living room > Dining room > Kitchen > Bedroom.

The Base Difference Factor for each house is calculated to determine how homogenised or heterogenised the houses were. The base difference factor BDF is given by the formula below (Source : Hanson (1998) – Decoding Homes and Houses pp 31):

$$H = \frac{a}{t}\ln\left(\frac{a}{t}\right) + \left(\frac{b}{t}\right)\ln\left(\frac{b}{t}\right) + \left(\frac{c}{t}\right)\ln\left(\frac{c}{t}\right)$$

$$H^* = \frac{H - \ln 2}{\ln 3 - \ln 2}$$

Where: a = Max RRA = 1.438
b = Mean RRA = 1.016
c = Min RRA = 0.587
t = Total = 3.041

$H = (-0.354) + (-0.366) + (-0.317) = 1.037$

$H^* = \frac{1.037 - \ln 2}{\ln 3 - \ln 2} = \frac{0.344}{0.4055}$ **= BDF = 0.848**

The more differentiated and structured the spaces are the closer to 0 the difference factor is, and conversely, the more homogenised the spaces are, the less the configurational differences between the spaces, and the closer to 1, the difference factor is. As such, there is not much spatial differentiation between the maximum, minimum and mean integration values for the house.

Justified graphs of each house were used to assess the step depth from the front door for each plan with the adjoining of external spaces taken into consideration. In this house, the multiple exits/entrances were mapped to ascertain the syntactic differences in using alternative doors to the house. As a detached house, there were no barriers between the front and the back of the site, so the external doors were interconnected to each other and the plot outside. The kitchen is two steps from the exterior, and the deepest space from any external space is the study at four steps from any external space.

From Hillier's (1996) classification of distributedness of spaces, the kitchen is on a ring (type 'C') with the external space, the dining room, living room and entrance hall. When justified without the exterior, the kitchen becomes a type 'B' space. There are only six type 'A' (terminal spaces) in the system and they are the bedrooms, study, kitchen store, bathroom and shower room. All other spaces are on a ring with external spaces.

Additional calculations include the Transition: Function Space ratio based on the number of convex spaces designated for circulation or for activity, and from the analysis, the house has a T:F ratio of 1.1 which means it is slightly transition-centred.

The spaces are also classified into zones for living spaces and service spaces, both for collective and exclusive uses, using the residents' assessment of the level of accessibility to inhabitant and non-resident persons as in Fig 4.12 below:

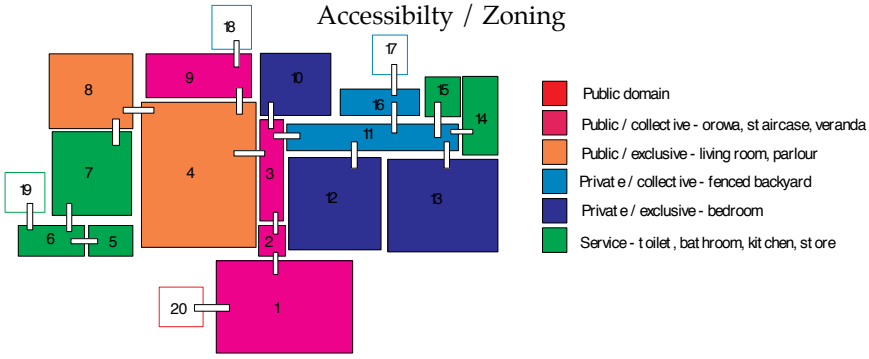


Fig 4.12 – Map of accessibility for inhabitant and visitor

The convex spaces are mapped to indicate the different levels of accessibility from the perspective of the inhabitant and visitor. The red and pink spaces are public collective spaces that can be accessed by a stranger (like a postman), but who would not be invited in. The orange is a public exclusive space, and a guest would be allowed access up to there, but it is exclusive to the household, and not shared with any other households. The light blue spaces such as the study and the garage, are private collective, in that it is accessible for all inhabitants, but not to guests, and the dark blue are the bedrooms, which are private exclusive, and accessible only to the household and or occupant. The green spaces are the convenience and service facilities and they are distributed across two wings, the living room wing and the bedroom wing.

How Activity, Objects And Food Are Operationalised

In previous chapters, it was argued how the different activities, objects and food bore status or symbolised status, across the socio-economic strata and within the domestic

environment. The analysis will look into aspects such as space use, and spatial co-presence of activities and objects.

Culinary practice and storage will be analysed in terms of its constituent activities, equipment and food, in order to see its spatial distribution, and how it impinges on other spaces in the domestic environment.

For activities: The inventory will map activities kept together and activities kept apart, and therefore indicate the spatial compatibility and incompatibility of activities. Also it is intended to check the location of culinary-related activity against the integration value and distributedness in order to see how that activity is spatialised. The activities consist of the daily ones – cooking, eating and dishwashing, and the occasional ones – foodprocessing and ceremonial cooking. The location of the three basic nodes – heat, water and food storage- and the location of the activities are mapped on a justified graph. The step distance of each activity to the cooking space will be measured to show how close to the cooking fire it takes place. The closer this figure is to zero, then the stronger the integrity of the culinary boundary, and the higher it is, the more spaces have to be traversed from the cooking space, and the weaker the culinary boundary. A sample graph is shown in Fig 4.13 below.

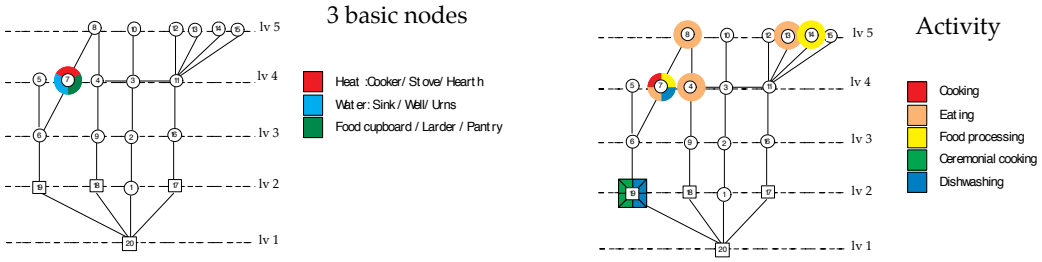


Fig 4.13 – Mapping the three basic nodes and culinary-related activities

The three basic nodes graph show the location of heat, water and storage to be within the kitchen boundary. The Activity graph shows dishwashing (blue) and foodprocessing taking place in the same space as the cooking (red), so the step distance is zero. However, eating takes place in the kitchen (zero), and in the dining room which is one step from the cooking space, and the living room at two steps, therefore the average step distance will be

given by (0 + 1 + 2) divided by 3 spaces = 1.0 steps. Ceremonial cooking takes place outside, and it is two steps away. Therefore in terms of spatial distance from cooking, the order is as follows:

Cooking : dishwashing = foodprocessing < eating < ceremonial cooking.
The average step distance for culinary-related activity is (0+0+1+2 divided by 4 = **0.75**)

For objects and food: The analysis on objects and food will assess the storage patterns in terms of movement from the place of storage to the place where it is to be used. The inventory will also map objects and foods kept together and objects and foods kept apart, and also indicate the spatial co-presence of objects in order to correlate it to activities and its syntactic properties (See Fig 4.14 below).

Objects are implements and facilities, which consist of traditional implements (mortar & pestle, and the grinding stone), electronic implements or appliances (mixer / blender, kettle) electronic facilities (fridge/freezer, microwave, cooker etc), and cooking utensils (ladles, pots, pans, cutlery etc). Seven categories of food were identified, and they have been assessed in the order of their durability or susceptibility to decay. Therefore, they range from the perishables (meat, fish, dairy – animal proteins), to fruits and vegetables, to cooked food, ingredients (spices, sugar, salt), to uncooked foods (tubers), to grains and semi-processed foods (rice, beans, *gari*- cassava flour, *elubo* – yam flour) to processed and canned foods, the most durable.

Likewise, the step distance from the place of storage of utensils and food to the cooking space will be measured to find out the strength of the integrity of the culinary boundary.

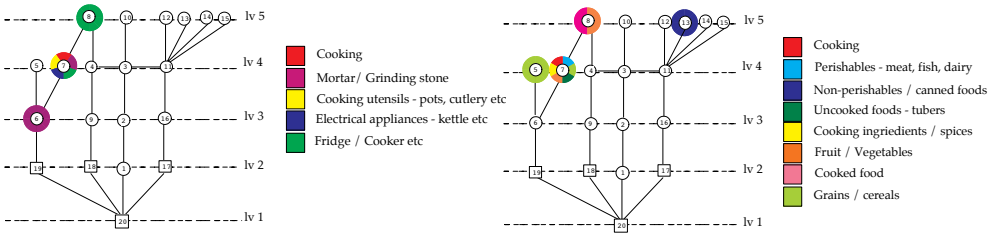


Fig 4.14 – Mapping of the location and storage of utensils and food

Using the same step depth distance from the cooking space calculation, the results show that cooking utensils and electrical appliances score zero, thereby maintaining the integrity of the culinary boundary, whereas the mortar and grinding stone, and the fridge/freezer score 0.5, and weaken the boundary. This is given as:

Cooking: utensils = electrical appliances < mortar etc = fridge/cooker

The average step distance for utensils and equipment is given as (0 + 0 + 0.5 + 0.5 divided by 4 = **0.25**)

Food is stored in the kitchen, kitchen store, dining room and bedroom, and the calculations show that perishables, cooking ingredients, and tubers score zero (kept in the kitchen), fruit and vegetables scored 0.5 (kept in kitchen and dining room), grains and cereals scored 1.0 (kept in kitchen and store), and canned foods scored 5.0 (kept in the bedroom).

The spatial distance of retrieval of food to the cooking space is as follows:

Cooking: perishables= cooking ingredients = tubers < fruit and vegetables < grains and cereals < canned foods.

And the average step distance for food is (0 + 0 + 0 + 0.5 + 1 + 5 divided by 6 = **1.083**)

Therefore, utensils and equipment are closest to the kitchen boundary at 0.25, followed by culinary related activity at 0.75, with food storage being furtherest at 1.083. A perfect boundary will be where all three units are at zero, so the higher the distance from the cooking space, the more that variable impinges on other spaces in the house, and has a presence beyond its designated space.

It is also intended to assess the pattern of the distribution of use in order to find out whether any physical, spatial, and social variables would be implicated or influence spatial choices for culinary-related activity and storage. In order to do this, respondents were asked to give reasons for their choice of spaces used for storage.

THE USE OF OUTDOOR SPACE

One of the challenges encountered in analysing the use of outdoor space has been in determining the position of boundaries between a series of continguous open spaces, therefore the principle of 'beady-ring' structure described by Hillier & Hanson (1984) in understanding small settlements has been applied. Hence, the location of entrances to the house in relation to open space, and the location of elements such as water points, wells etc will be used to determine how outdoor space is constituted (See Fig 4.15 below)

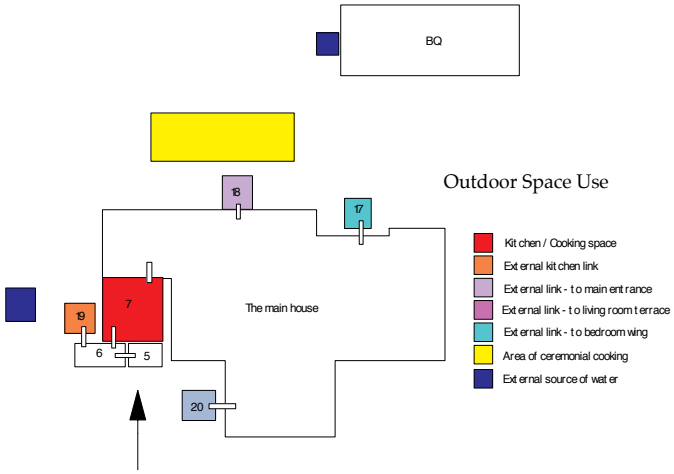


Fig 4.15 – Internal/ external connections and space use

From Fig 4.15 p124 above, outside space 20 leads to the front entrance, and it is used daily by all – residents, visitors and strangers. Space 19 leads to the kitchen, and it is also used daily by the residents to take out the rubbish, and let out cooking fumes whilst cooking. Space 17 leads to the bedroom wing, and it is mainly used to take out the laundry to the clothesline, which is about once a week. Space 18 leads to the living room veranda, which was meant to be a relaxation space. The residents say this door has only been used once in about five years.

As ceremonial cooking takes place in the grounds of this house, then the three basic nodes of heat, water and storage of food and utensils are mapped in relation to external spaces and site elements like the BQ tap and the reservoir tank.

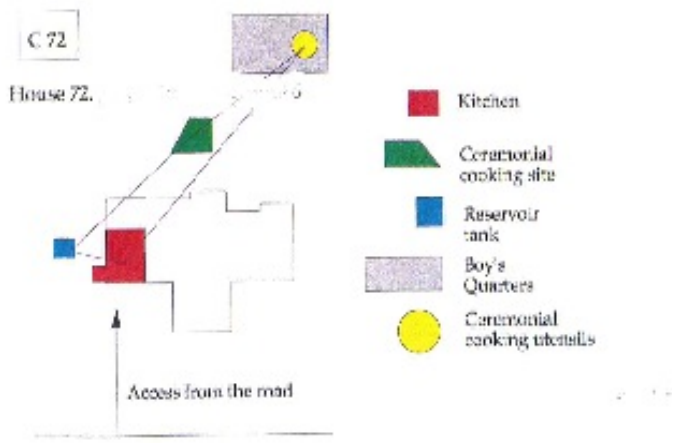


Fig 4.16– Ceremonial cooking (3 basic nodes)

The area used is located at the rear of the site, and away from the view from the entrance drive.

In all seventy-five houses, respondents were asked to indicate where ceremonial cooking took place, and where ceremonial cooking utensils were stored. The mapping then indicated the locus of ceremonial cooking in relation to the daily cooking space, the designated kitchen if applicable, the source of water and the place food and other implements are stored for retrieval for use in cooking. As ceremonial cooking usually involved the use of firewood, and a large number of cooks, it tended to take place outside in most houses. Therefore, the analysis will look at how outdoor space is articulated in these instances, in relation to whether and if applicable, how the concept of Goffman's (1959) frontstage and backstage is expressed.

At the time of the field work, four different celebrations were observed and the layout of the ceremonial space setting is shown as in Fig 4.17 a, b, c & d. Fig 4.17 (a) was a fiftieth birthday party for the wife, Fig 4.17 (b) was a traditional wedding ceremony for an adult daughter, Fig 4.17 (c) was a child's naming ceremony for a first born son to two lecturers and Fig 4.17 (d) was a professor's inaugural lecture party for friends and family, following a formal reception given to academic colleagues. In each of these layouts, ceremonial cooking and dining took place on the premises as indicated in Fig 4.17 below.

FIG 4.17 - Ceremonial Cooking and Dining

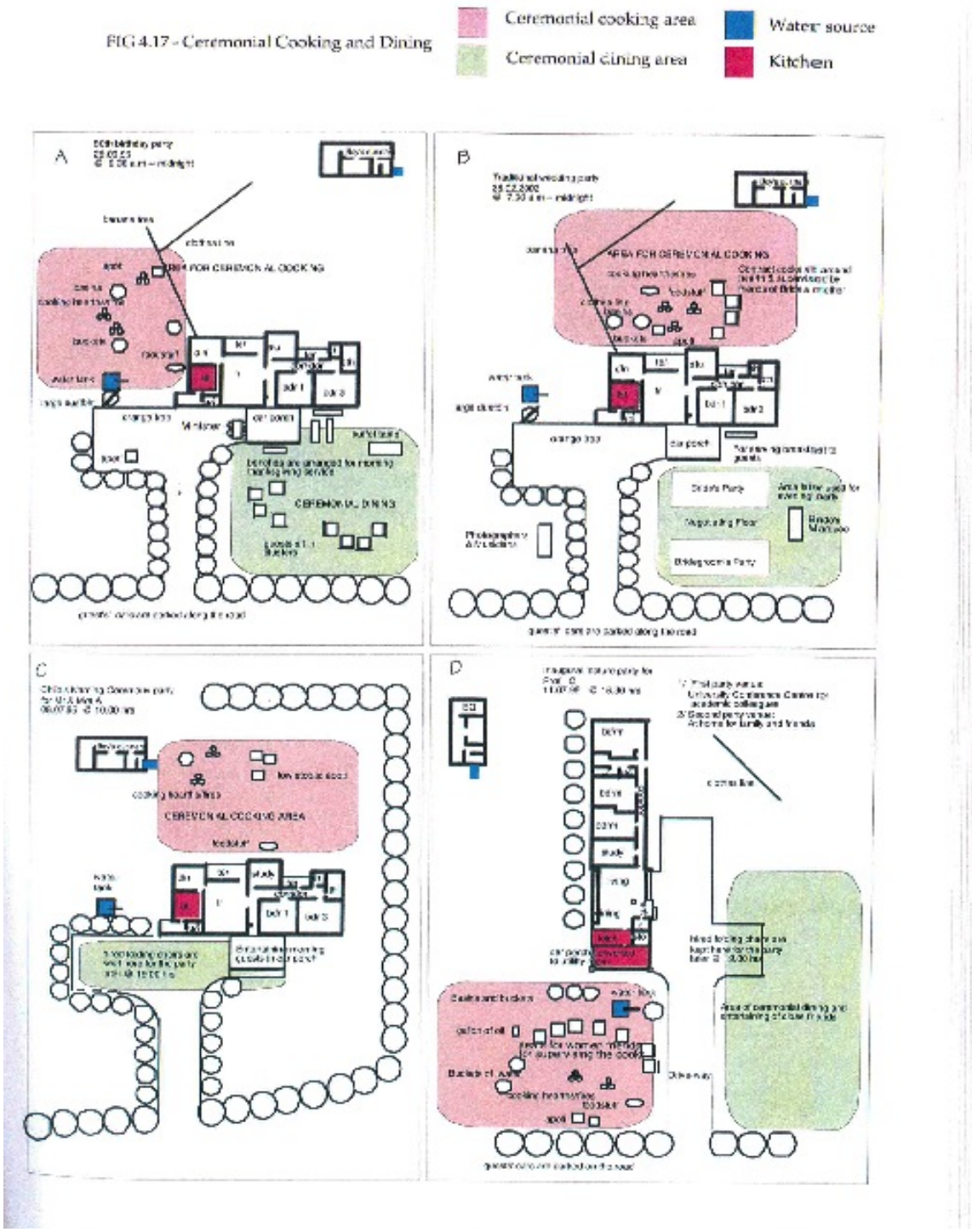


Fig 4.17

The following observations were made:

a. Cooking and dining took place in almost opposite sides of the house. In Fig 4.17 (a, b & c), the sites are separated by the house, and in d, they are separated by the entrance drive. Also ceremonial dining was directly connected to the front door and living room areas, and ceremonial cooking was connected to the kitchen area.
b. Firewood hearths and cauldrons were used in each situation.
c. Cooking and food preparation was carried out only by females (*i.e. mothers, daughters, friends, maids and kin*), and the males (*not necessarily the fathers*) carried out the heavy lifting of crates of beer and drink.
d. The location of an external water source, and the location of the indoor kitchen and storage space for utensils influenced which part of the site was used for the hearth, which in a sense re-enacted the three basic nodes of the source of heat, water and storage of food and utensils. For Fig 4.16 a, b & d, the reservoir tank was the source of water, and in Fig c, it was the BQ tap.
e. In Fig d, the orientation of the kitchen to the road (whereby the kitchen window overlooked the entrance drive, and the location of the water tank resulted in the cooking site to be situated in the front of the site (i.e. next to and visible from the road), whereas, in Fig a, b & c, the site orientation of the internal kitchen and external water source meant that cooking took place away from the road boundary.

VISUAL AND SENSORY PROXIMITY

The visual and sensory proximity of adjacent spaces to the cooking space will be measured by the use of isovists. Isovists are two-dimensional representations of visual fields, and they measure the range of visibility from particular points in space to all areas within a space and beyond.

The analysis will look at what activities are visible from the cooking space in each of the houses, in order to see if those adjacent activities have an effect on culinary related activities in the cooking space as in Fig 4.18 below.

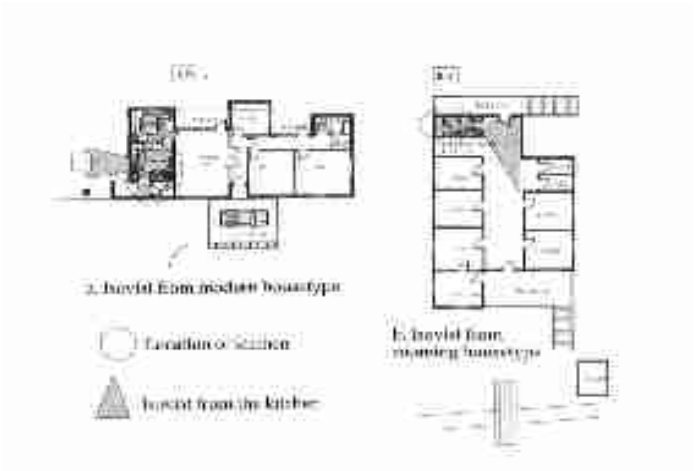


Fig 4.18: Isovists from the kitchens of a modern housetype and a rooming housetype

The isovists from the modern housetype covers the kitchen, dining room, kitchen terrace and the sideyard through the window, and the isovist from the rooming housetype kitchen covers the kitchen and rear section of the hall, including the entrance to the toilet and bathroom. Therefore, activities in sensory proximity from the modern housetype range from ancillary culinary activities to eating, whilst in the rooming housetype includes bathing and toileting. This suggests that cooking in the modern housetype is associated with a higher status activity (eating) but in the rooming houstype, with a lower status activity (cleansing and toileting).

Likewise, the isovists from the cooking space of all seventy-five houses will be analysed in order to have a broader view of the social positioning of space and activity in the houses.

SUMMARY AND ADVANCING ON TO THE ANALYSIS

The strategy, the materials and the method used in the thesis have been presented in this chapter. The aim is to identify the several facets of space in order to equip the study in assessing how social phenomena are spatialised.

The seventy-five households surveyed from different geographical areas of Ile-Ife have been amalgamated into one database and then re-distributed into three groups based on their housetype. These houses will be analysed using the methods presented in this

chapter to assess the separation of activities and objects into spatial boundaries, the co-presence occupation of space, the traversing of spatial boundaries and in order to analyse status, solidarity and social mobility in domestic space.

The first group called the orowa house is made up of single storey houses for the compound extended family, with the central collective space called the orowa, flanked by rooms for residents. The analysis of the orowa housetype is presented in Chapter Five: The orowa house and community.

The second group called the rooming house is made up of two or more storey houses for multiple co-resident households, but unlike the orowa housetype household members, are not necessarily kin. The analysis of the rooming housetype is presented in Chapter Six: The rooming house and co-residency.

The third group called the modern house is made up of single-family houses for the nuclear family, and does not share any space with any other households. This housetype relates to the African colonial bungalow and the analysis is presented in Chapter Seven: The modern house and self-sufficiency.

V The Orowa House & Community

The purpose of this chapter is to present the analysis on the orowa housetype. Orowa households tend to dwell in extended family compounds and share facilities with kin. The distribution of activity, objects, food and persons in culinary-mapped spaces is analysed in terms of step depth, convexity, sensory proximity, integration and segregation and by observing the patterns of how things are kept together and kept apart, in order to determine how status, solidarity and social mobility are manifested in the use of domestic space. The analysis found that because almost every space in the orowa house has a culinary footprint, such that culinary practice has a visible and integrated presence in orowa houses, an increase in status tends to move objects and activities into segregated spaces. The analysis also found that because most of the culinary activities took place in integrated and collective spaces, and usually in the presence of others, the sensory proximity of adjacent activity tended to influence the space use choices. With respect to persons, the study found that in the orowa house, living with kin tended to reinforce traditional ideologies of gender and age roles.

INTRODUCTION

In outline, the chapter starts with a description of the general layout of the house, site and context, followed by a syntactic analysis of the housetype in terms of integration, distributedness, depth and so on. This is followed by a matrix of the culinary-mapped spaces against activities, utensils storage and food storage, with a view to correlating the syntactic properties of the culinary mapped spaces with the boundary patterns i.e. depth, convexity and sensory proximity. The social typification of the households is explored by looking at role allocation according to seniority and gender.

HOUSEFORM AND SITE

Twenty orowa households consisting of nineteen in Enuwa, and one in Akarabata were studied (See Fig 5.1). House 37 in Akarabata has been included in this category because of its similar form (layout and storey) and though it accommodates a single extended family home for three generations of a polygynous family, it is not part of a larger compound of houses and it is in a fenced boundary unlike most Enuwa houses.

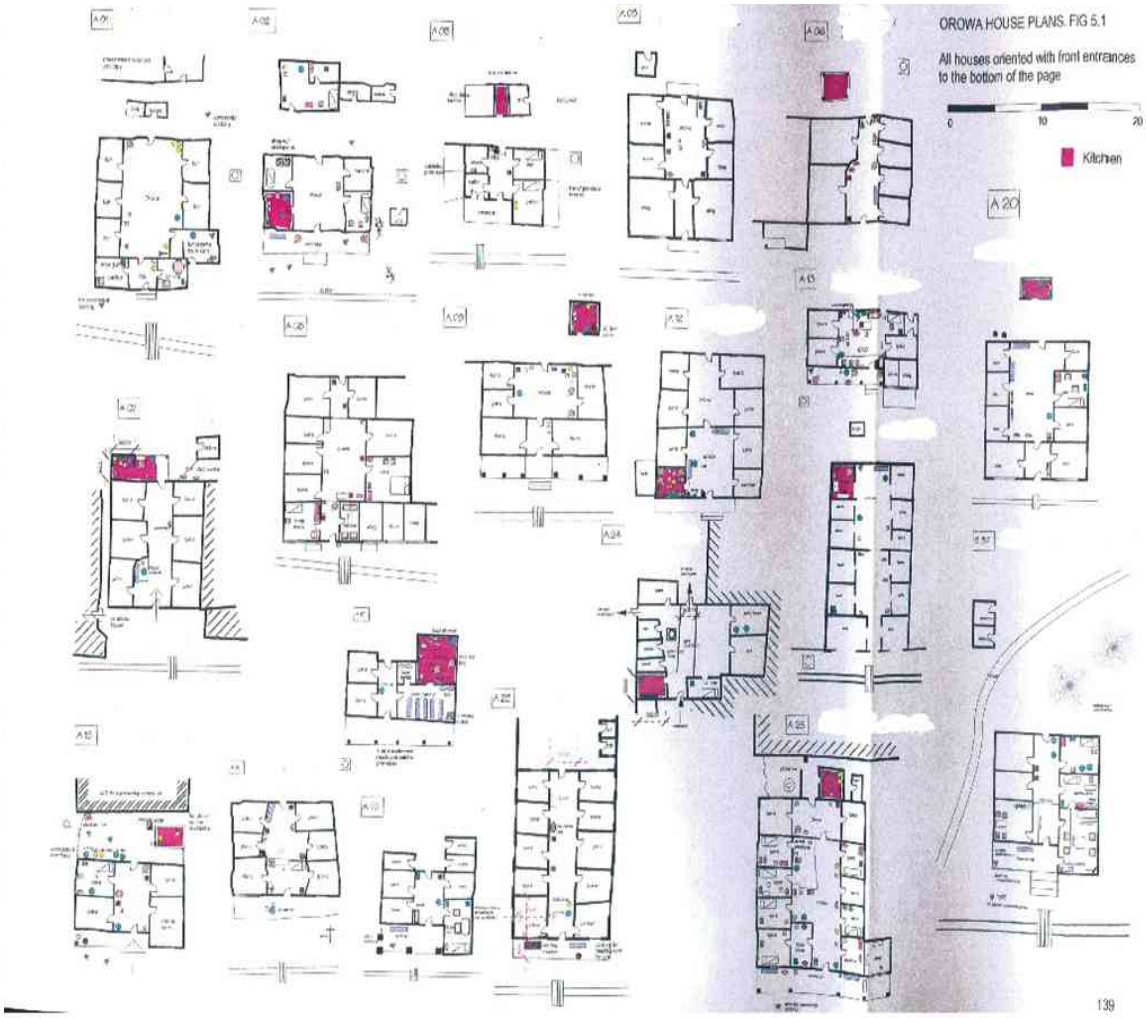


Fig 5.1 – Floor plans of orowa houses

Households surveyed were at different stages of the development cycle, and they consisted of four single nuclear family households, thirteen extended family households and three polygynous households, who share the orowa with close kin in the form of parents, siblings and half-siblings and the outdoor space with extended kin in the form of cousins, uncles and aunts.

The orowa house is a single storey house with a central hall (*orowa)* flanked by several rooms (*iyara)* on opposite ends. The orowa is a centralised activity, service and storage space and a concourse for circulation between the *iyara* and the backyard facilities. From the field results, activities that took place in the orowa ranged from entertainment, relaxation, and sleeping to cooking, foodpreparation, eating, foodprocessing and commercial trading. Using the Vischer (2005) classification, the *orowa* is the secondary territory of the individual household because it is a collective space, and the *iyara* is the primary territory because it is exclusively occupied by the primary family unit. In majority of the households studied, the *iyara* is multi-functional like the orowa, particularly for living and storage activities, but not as much for service activities. It is therefore the objective of this study to analyse the dispersal of one culinary activity over many spaces on one hand, and the concentration of several activities and objects into one single multi-functional space on the other.

The typical *orowa* may contain urns, low stools, stoves, stone hearths, grinding stone, mortar and pestle, brooms, sleeping mats, food baskets and sacks, foodstuff, benches and tables. Most items found here tend to be moveable, and would be located around the perimeter of the space, leaving the middle free for circulation and other household activities. In other words, the objects tend to be centrifugally situated at rest, and centripetally situated in use. The *iyara* is used for relaxation, entertainment, sleeping, eating and storage of food and utensils, but rarely for cooking, though some food preparation activities like shelling seeds, or picking grains may take place there. Generally, households may cook in the *orowa* or near to their house on a daily basis, and use the communal kitchen for bulk or ceremonial cooking activity. The variations to this basic layout are in the form of its transition with external areas and articulation of the *orowa*. Twelve houses have transitional access in the form of cloistered verandas, porticos, and eight houses) have threshold entrances, in the form of doorways with entrance steps (See Fig 5.2 below)

with threshold entrance with veranda entrance

Fig 5.2 – Different access types to orowa houses

The orowa varies from a single rectilinear space to two or more spaces of varying widths found in twelve houses, or separated by walls and doors in seven others – (See Fig 5.3).

Front and back orowa type separated by a wall and door

Contiguous orowa separated by step

Fig 5.3 – Variations of the shapes of the orowa space

In three houses (Houses A05, A09- *Fig 5.3 above left*, and A20), where the two orowa were separated by a wall, there was little indication that the front orowa was used for domestic activity, but in A12 the kitchen was one of the rooms leading from the front *orowa*, which suggests for the first three houses, that living/service area separation exists at this juncture in the house layout. Households also use the veranda as a living space, for sitting, eating and as a service space, for cooking and dishwashing.

Six orowa houses have shopfronts (see Fig 5.4 below). These shops are let out to traders such as tailors and grocers. Shop front houses are a transformation of the orowa house as it turned the house towards to the street (extrovert), whereas the courtyard house was introvert. The shopfront also implied the practice of letting out property to non-kin to generate income, which was not possible in old society.

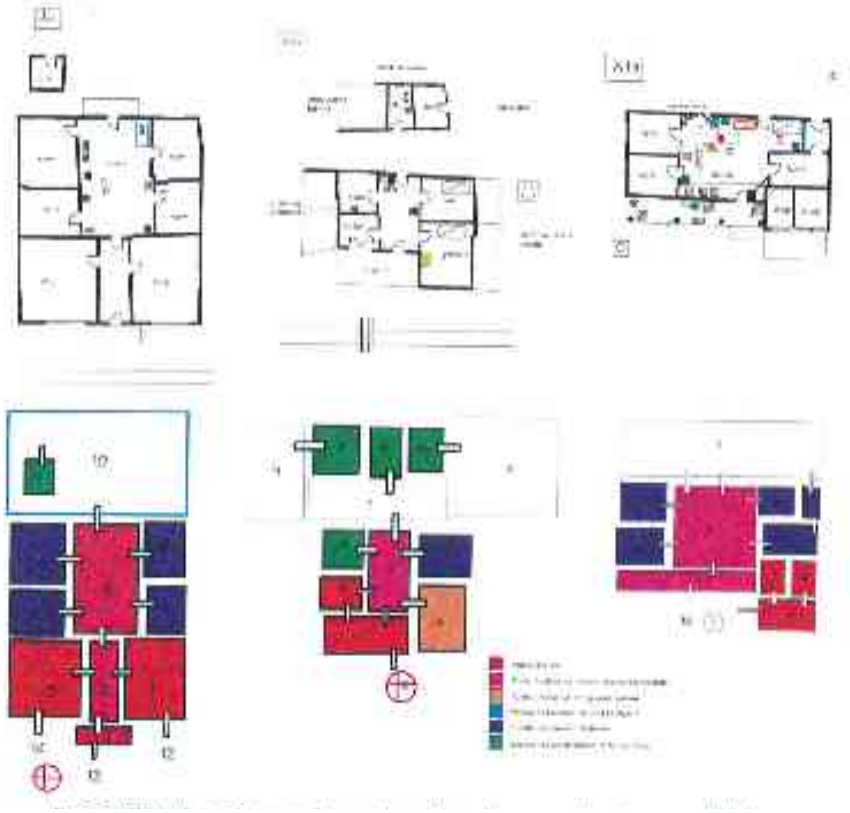


Fig 5.4 Shop front house plan and zoning plan according to space label.

Fig 5.4 above shows a zoning plan indicating the category of accessibility available to the public, the inhabitant and the visitor, and for these houses, the public have access up to the front door because of the shops. The zoning plans show the public (red) and public-collective (pink) spaces in the geometric front section of the plan, flanked by the private exclusive (blue) spaces, and the private collective backyard (light blue) spaces leading to the service (green) spaces to the rear of the plan.

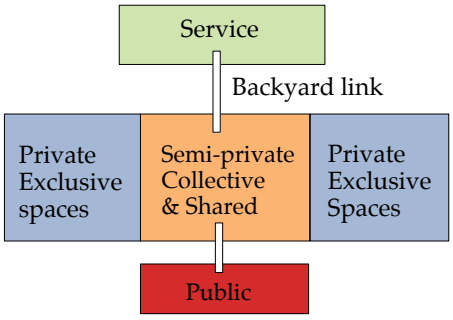


Fig 5.5 shows a typical schematic layout of spatial zoning.

In summary, the schematic layout shows private exclusive spaces symmetrically flanking a semi-private collective space with a shared collective service space to the rear and accessible via the public collective space.

SPACE SYNTAX ANALYSIS OF *OROWA* HOUSES

The purpose of this section is to present the space syntax of the houses and site as a whole. This will include the j-graph to show the pattern of connectivity, distributedness and depth of the floor and site plan, the proportional ratio of function and transition spaces, public, private and service spaces, culinary-mapped and service spaces, and the Base Difference Factor to assess the homogeneity and heterogeneity of the configuration as a whole. Respondent households informed on the space label, the use of each space and its frequency. All spaces used for culinary-related activity and storage was noted in the analysis. The intention was to identify the spatial characteristics of each culinary-mapped space in terms of depth, integration, segregation, connectivity and sensory proximity. From this, it was then possible to assess which activities and storage patterns share a convex space, was separated into other convex spaces and traverse several convex space boundaries bearing in mind that each convex space has specific properties of depth, integration, connectivity and distributedness.

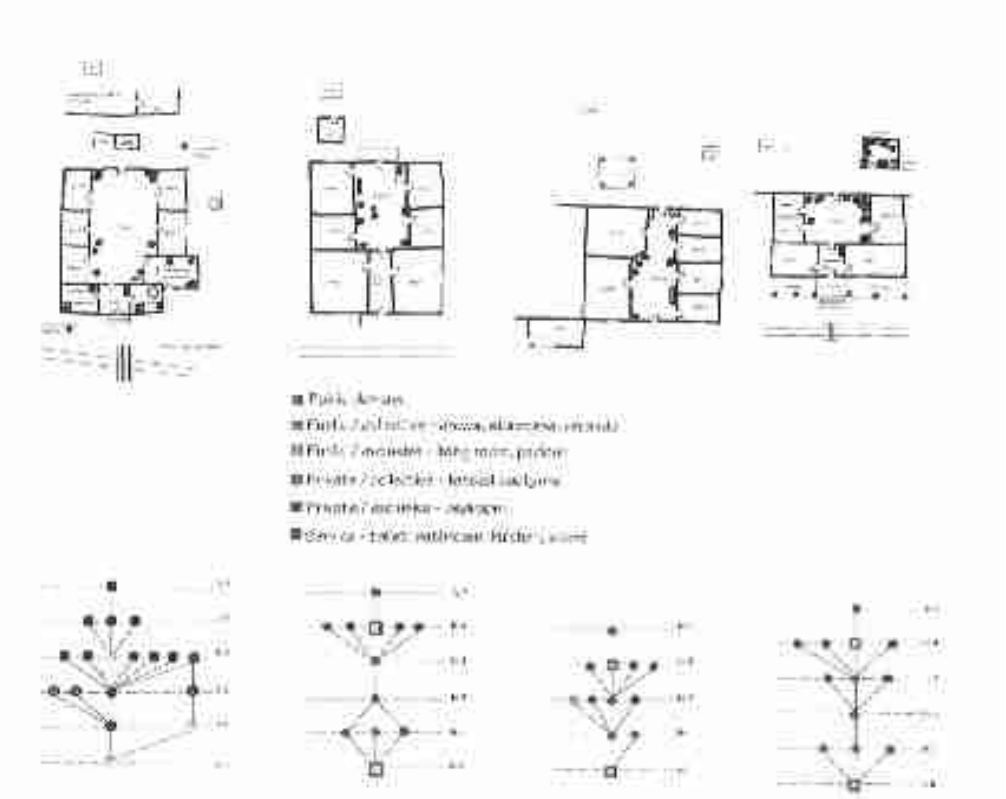


Fig 5.6 – Plans and accessibility coded j-graphs of typical orowa house plans
The floor plans and j-graphs for all twenty orowa houses may be found in Appendix Four.

The j-graphs (See Fig 5.6 below) show that *orowa* houses are bushy, and consist mainly of type A (terminal) and type B (circulation) spaces for the orowa, iyara, backyard and service spaces, with a few type C & D (single and double-ring) in the shallow parts of the graph, where there were shops. The distributedness for culinary-mapped spaces is discussed below.

The j-graphs show a continuous sequence of spaces from the outside (indicated by a red square which is a public space) through a succession of internal type B spaces (indicated in pink as a public collective space accessible to visitors), to another external space (indicated by the light-blue square as a private collective space accessible to several resident nuclear households) and terminating in an internal type A space (indicated by a green circle for service spaces). Several internal type A spaces for the *iyara* branch off the succession of type B *orowa* spaces (indicated in dark-blue as a private exclusive space accessible only to

the occupant and their nuclear household). Houses with shops in front also have type C' and D ring spaces connecting the *orowa*, and the outside.

Table 5.1 below is a summary of the syntactic analysis on orowa houses

House No	Sample Area	No: Convex spaces	Mean Integration	Total Depth	Mean Step Depth	Base Difference Factor	Transition: Function Ratio
15	Enuwa	9	1.350	5	2.750	.606	.167
17	Enuwa	9	1.130	5	2.900	.687	.600
18	Enuwa	11	1.070	5	3.100	.724	.250
22	Enuwa	11	1.240	5	3.000	.669	.375
3	Enuwa	11	1.240	4	3.300	.669	.375
6	Enuwa	12	1.110	5	2.360	.764	.200
5	Enuwa	12	1.160	6	3.000	.720	.375
13	Enuwa	12	.850	5	2.550	.785	.333
9	Enuwa	13	1.030	6	2.900	.751	.375
7	Enuwa	13	1.100	6	2.920	.737	.333
20	Enuwa	13	1.460	5	2.500	.603	.300
2	Enuwa	13	1.180	5	3.580	.741	.300
24	Enuwa	14	6.110	4	2.150	.706	.444
37	Akarabata	14	1.470	5	3.000	.633	.333
12	Enuwa	15	1.120	7	3.500	.806	.300
19	Enuwa	16	1.278	5	2.930	.565	.231
23	Enuwa	16	1.930	5	2.930	.424	.231
8	Enuwa	17	1.140	5	2.440	.606	.308
1	Enuwa	18	1.270	5	2.820	.727	.286
25	Enuwa	22	1.040	7	3.810	.762	.222
Average		**13.55**	**1.467**	**5.250**	**2.922**	**0.684**	**0.317**

Note: The houses are arranged in ascending order of the number of convex spaces per house

The number of convex spaces ranged from nine to twenty-two, with the mean being around thirteen and a half, and with eight houses greater than the mean. The total depth ranged from four to seven, the mode being five in fourteen houses, and the mean step depth ranged from 2.150 (House 24) to 3.810 (House 25).

The 'transition spaces to function spaces ratio' ranged from 0.167 in House 15 to 0.600 in House 17. Nineteen out of twenty houses all fall below 0.5 which means that less than half of all convex spaces are solely for circulation. The orowa is a main circulation space as well as the main functional space in the house. Likewise, the veranda is an access porch and an outdoor sitting and service area. The open backyard space is also used for several service activities. As stated above, in houses with multiple orowa such as in Houses 1, 5, 9, 18, 19, 20, the front orowa is mainly used for circulation, and the other orowa spaces are functional. In some other houses, the transition spaces include the veranda as in Houses 3,

9, 12, & 25, or an element like the entrance steps as in House 37. Nevertheless, the majority of orowa houses are functional-centred.

The Base Difference Factor results show a range from 0.424 to 0.806, however, only one house, No 23 is lower than 0.5 (at 0.424), and ranks in the lower third percentile, and the other nineteen houses range 0.565 to 0.806. Seven houses score in the middle percentile and twelve score in the top third percentile, which means that 60% of orowa houses are relatively homogenised in layout. See Fig 5.7 below:

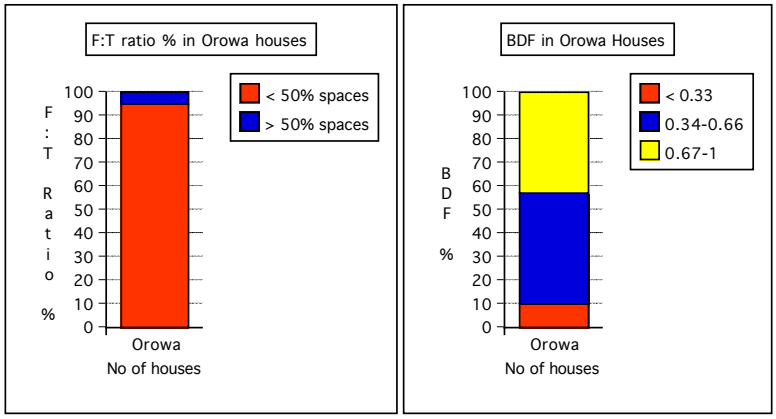


Fig 5.7 – Charts showing the split of Function : Transition spaces ration and the Base Difference Factor percentile for all twenty orowa houses

It is intended to compare the pattern of these charts with that for the rooming and modern housetypes in Chapter 6 and 7 respectively.

Integration And Segregation:

In the following analysis, the integration and segregation values for the culinary-mapped spaces (i.e. spaces with a culinary-related footprint for activity and storage) are presented. From the fieldwork, the culinary-mapped spaces were the orowa, backyard, iyara, the outside space and the kitchen. The colour-coded distribution of integration for each house is given in the Table 5.2 below. In the chart, moving down the scale from the most integrated to the most segregated space, red shows the most integrated space, followed by pink, orange and yellow as relatively integrated spaces, and light-green, dark-green, light-blue and dark-blue the segregated spaces with the latter being the most segregated.

OROWA HOUSE - INTEGRATION						
HOUSE NO	**Orowa**	**Backyard**	**Iyara**	**Outside**	**Kitchen**	**F.Veranda**
1	2.933	1.898	1.195	1.113		
2	2.598	2.273	1.01	0.674	1.01	1.137
3	3.318	1.896	1.021	0.664	0.829	1.206
5	2.612	1.119	0.979	0.712		
6	2.238	1.045	0.922	1.045		
7	2.057	0.866	0.927	0.791	0.791	
8	1.917	0.813	0.934	1.273		
9	1.92	0.957	0.866	0.791	0.606	0.758
12	2.247	1.239	1.009	0.673	0.981	1.07
13	1.567	0.871	0.812	0.979		1.306
15	4.435	1.267	0.986	0.634	0.634	1.267
17	2.957	0.857	0.887	0.591	0.682	1.109
18	2.054	0.885	0.885	0.632		1.106
19	2.929	2.396	1.146	0.909	1.054	
20	4.546	1.399	1.212	1.01	0.758	
22	3.318	1.896	1.021	0.664		1.206
23	8.787	2.028	1.551	0.909		1.757
24	6.937	0.832	1.387	0.905	0.905	
25	1.787	1.047	1.023	0.763	0.714	1.098
37	4.162	2.312	1.272	0.8		1.487
	65.319	27.896	21.045	16.532	8.964	14.507
Average	**3.266**	**1.395**	**1.052**	**0.827**	**0.815**	**1.209**

Table 5.2: Distribution of integration in orowa houses

Indicated in red, the orowa is the most integrated space in all twenty houses, but the kitchen ranks as one of the most segregated in light-blue and dark blue. With the exception of Houses 1, 2 and 19 where the backyard is colour-ranked as yellow, pink and orange respectively, and House 13 where the front veranda is ranked as pink, all other culinary-mapped spaces are in green and blue, which means that the majority of the culinary-mapped spaces in the houses are segregated. Using the common spaces, the rank order of integration were found as follows:

Group	Rank order of integration	Mnemonic	House Nos	Total
1	*Orowa > Backyard > Iyara > Outside*	OBIO	1, 2, 3, 5, 9, 12, 15, 17, 19, 20, 22, 23, 25, 37	14
2	*Orowa > Outside > Backyard > Iyara*	OOBI	6, 13	2
3	*Orowa > Outside > Iyara > Backyard*	OOIB	8	1
4	*Orowa > Iyara > Backyard > Outside*	OIBO	7, 18	2
5	*Courtyard > Iyara > Outside*	CIO	24	1

Table 5.3: The rank order of integration

The backyard is the second highest integrated space after the orowa in fifteen houses, but the *iyara* is ranked higher than or equal to the backyard in four houses. The distribution shows that in most houses, the orowa and backyard rank higher than other culinary-mapped spaces, which means that collective public spaces more dominant than the exclusive private spaces. The *iyara* is ranked as relatively segregated. The outside space is most segregated (see group 1, 4 and 5 from Table 5.3).

From the patterns, there are two distinct groups, the majority group consisting of Groups 1, 4 & 5, where the *orowa*, *iyara* and backyard (i.e. inhabitant spaces) are ranked higher than outside (non-inhabitant spaces) or "introvert", and the minority consisting of Group 2 and 3, where the *orowa* and outside spaces (i.e. the public communal spaces) are ranked higher than the backyard and *iyara* (i.e. private inhabitant spaces)- "extrovert". Fig 5.8 below shows House 8 from Group 3 (Extrovert) and House 23 from Group 1 (Introvert) that also has the lowest and highest maximum to minimum integration ratio respectively:

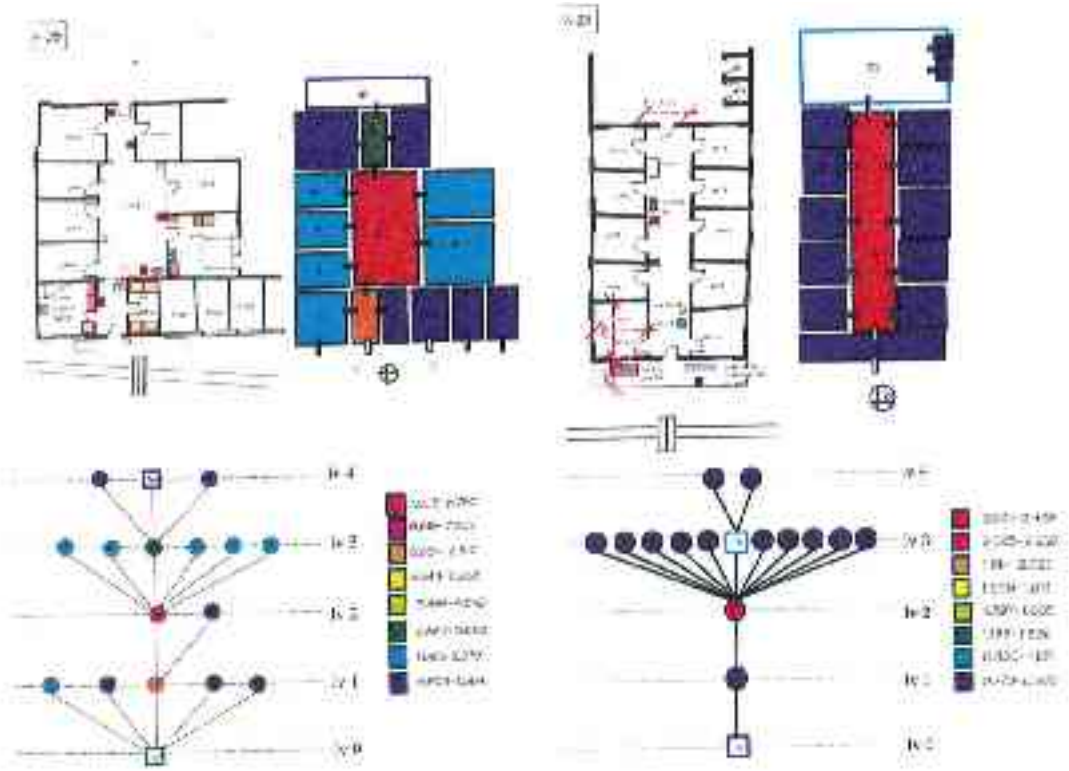


Fig 5.8: Two genotypes – the extrovert and introvert house

In terms of space use, the rank order shows that when cooking takes place in the orowa, and eating in the *iyara*, then, cooking occupies a more integrated space than eating. However, where there is a designated kitchen in detached or semi-detached premises as in Houses A03, A07, A09, A15, A19, A20 and A25, the rank order is as follows:

- Orowa > Backyard > *Iyara* **>** Outhouse kitchen > Outside

In these instances, cooking took place in a segregated space. When the designated kitchen is one of the spaces off the orowa, as in A02, A12, and A24, then the kitchen bears the same integration value as the *iyara*. This means the integration value of the cooking space will be greater than the mean integration where the orowa is used, and be lower than the mean integration, where a designated kitchen is used. Even where there is a designated kitchen, households do still perform some culinary related activity like shelling peas, picking rice, beans or maize, sifting cassava or yam flour, or pap and so on, in the orowa, veranda or *iyara*.

From the rank order shown in Table 5.3 above, the outside space is ranked second and higher than the iyara and backyard in three houses, whereas the backyard is ranked second in the majority of the houses. In order to adjust for these situations, the comparative rank order of these spaces with respect to the whole sample is measured as follows: if the space is ranked first, then the number of houses is multiplied by one, second by two, third by three and so on. The lower the overall sum of spaces, then the higher ranked the space is relative to the other spaces for the whole sample as in Table 5.4 below:

Rank Order position	***Orowa***		**Backyard**		***Iyara***		**Outside**	
	No of houses	Multiplied	No of houses	Multiplied	No of houses	Multiplied	No of houses	Multiplied
1st rank x 1	20	20						
2nd rank x 2			15	30	4	8	3	6
3rd rank x 3			3	9	14	42	1	3
4th rank x4			2	8	2	8	16	64
Total		**20**		**47**		**52**		**73**

Table 5.4: The comparative integration position of culinary mapped spaces

The comparative rank order of integration according to space over twenty houses is orowa (1.0) > backyard (2.35) > *iyara* (2.6) > outside (3.65).

From the analysis, using the spaces mapped red, pink, orange and yellow in the frequency distribution as integrated spaces, and the spaces mapped light and dark green, and light and dark blue as segregated, the results show that the number of segregated spaces far outweighs the number of integrated spaces in the house as seen in table 5.5:

House No	No of integrated convex spaces: I	No of segregated convex spaces: S	I: S ratio
17	1	8	0.13
15	1	8	0.13
3	1	10	0.10
22	1	10	0.10
18	2	9	0.22
13	2	10	0.20
5	2	10	0.20
6	2	10	0.20
20	1	12	0.08
2	2	11	0.18
9	2	11	0.18
7	1	12	0.08
37	1	13	0.08
24	1	13	0.08
12	2	13	0.15
23	1	15	0.07
19	2	14	0.14
8	2	15	0.13
1	2	16	0.13
25	3	19	0.16
		Mean I: S ratio	**0.137**

Table 5.5: Ratio of Integrated: Segregated spaces

Table 5.5 above shows that in seven houses (Houses 3, 22, 20, 7, 37, 24 & 23), less than 10% of the convex spaces were integrated (i.e. I:S ratio is ≤0.1), twelve houses had I:S ration between >0.1 to ≤ 0.2 and only one house (House 22) had an I:S ratio of 0.22. This shows that the though the segregated spaces constituted a higher proportion of the convex spaces, the integrated spaces – i.e. orowa and backyard - actually controlled accessibility to a great extent.

It is also intended to compare the I:S ratio for rooming and modern houses.

Depth And Distributedness:

In this section, the depth and distributedness of the culinary mapped spaces, namely the orowa, the room, the backyard, the designated kitchen and the frontyard are described, and summarised as in Table 5.6 and 5.7 below. Cooking takes place mainly in the orowa in

fifteen out of the twenty houses. Two houses (House 12 and 17) have a designated *iyara* in the main house as kitchen, and two others (House 2 and 12) also use the front veranda for cooking. House 19 and 25 use both the backyard and a semi-detached or detached structure / outhouse in the backyard as kitchen.

Table 5.6 – Depth of culinary mapped spaces in orowa houses

HOUSE NO	TOTAL DEPTH	OROWA	IYARA	KITCHEN	BACKYARD
1	5	2	2		3
2	5	2	3	3	3
3	4	2	3	4	3
5	5	3	4		4
6	4	1.5	2		3
7	5	2.5	3	4	4
8	4	2	3		4
9	5	3	4	5	4
12	4	2.5	3	3	2
13	4	2	3		3
15	4	2	3		3
17	4	2	3	4	3
18	4	2.5	4		4
19	4	2	3	4	3
20	4	2	3	4	3
22	4	2	3		3
23	4	2	3		3
24	3	1	2	2	3
25	6	3	4	6	5
37	3	2	3		2
SUM	**85**	**43**	**61**	**39**	**65**
MEAN	**4.25**	**2.1**	**3.05**	**3.9**	**3.25**

Table 5.6 shows that overall, the orowa is shallowest and the kitchen is deepest in the house. The pattern indicates a clear front/back divide in depth with the orowa and iyara which are in the main house ranking shallower than the backyard and kitchen, although Houses 2, 12 and 24 use one of the iyara in the main house as kitchen. Therefore, the depth and distributedness of cooking as an activity ranges from one step from outside (as in the veranda), to two to three steps in the orowa, to four or more steps in the backyard and detached kitchen. The veranda and orowa are type B (transition) space or type C (ring) space; the backyard is a type B (transition) space or type C (ring) with other open spaces and sideyards; and the outhouse kitchen is usually a type A (terminal) space.

	Type	House Nos	Total (20)
1	A and B	15, 17, 22, 18, 9, 7, 2, 20, 24, 12, 23, 19, 8	13
2	A, B and C	3, 13, 1, 25	4
3	A, B, C and D	5, 6, 37	3

Table 5.7: Distributedness of spaces in orowa houses

The dominant pattern consists of type A and B combination, with the type B spaces i.e. front veranda, the orowa and the backyard leading to type A spaces i.e. the *iyara*, the service spaces (kitchens, stores, toilets, bathrooms etc). Three of the four houses with type C spaces have the orowa as one of the spaces in the ring in a system of two interconnecting *iyara* as in House 3, i.e. a completely internal ring, and the external spaces as in Houses 1 and 13, hence a ring with outdoor spaces. House 3 has a ring between two interconnecting rooms and the orowa where one room is used for entertainment and the other for sleeping. Two houses have type D spaces. In House 6, the front orowa is on two rings with two adjacent shops, the front veranda and frontyard, i.e. a ring with outdoor spaces, whereas, in House 37, there is one internal and one outdoor ring, all linked to the orowa.

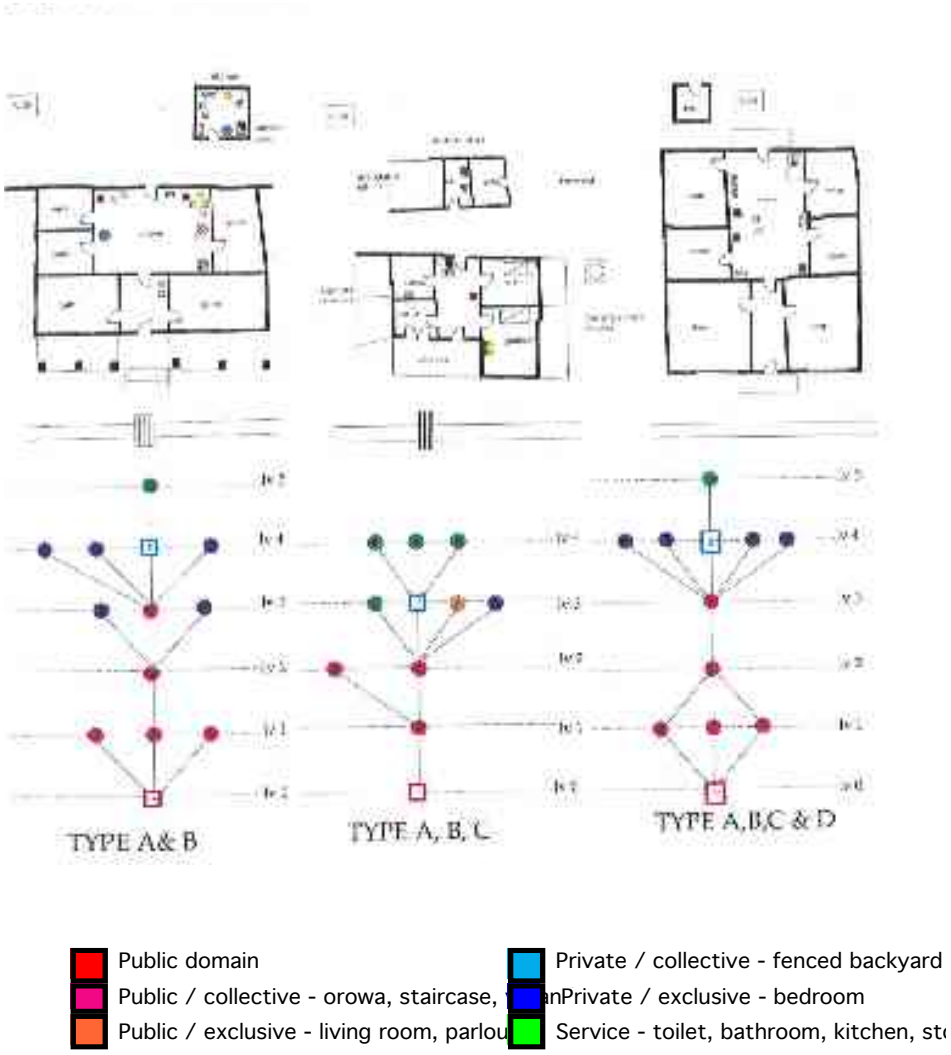


Fig 5.9 above shows the plan and j-graph of one house from each group:

The convex spaces in each house were distributed into whether they were shared with other households, exclusively occupied by one single household or were service spaces (i.e. bathroom, toilets and kitchens). The shared spaces were the *orowa,* the front veranda and yard, and the backyard, and the exclusive spaces were the *iyara*. It is to be noted that the *orowa* and the *iyara* also had subordinate uses. The *orowa* as a living space also accommodates service activities such as food preparation, storage, food processing and child-bathing; and the *iyara* is used as parlour for receiving guests, bedroom, eating and storage of food and utensils. Nevertheless, in this study the mode of classification employed will assess the *orowa* as a shared space, and the *iyara* as an exclusive space.

Fig 5.10 below is a chart that compares the percentage split of shared, exclusive and service spaces in each house. The houses have been arranged in ascending order of convex spaces from left to right.

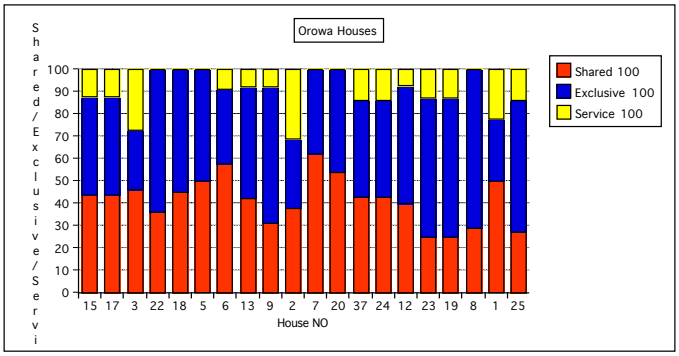


Fig 5.10: Chart of the percentage split of shared, exclusive and service spaces

The results show that shared spaces exceed exclusive spaces in six houses (Houses 2, 3, 6, 7, 20 & 22); exclusive spaces exceed shared spaces in nine houses (Houses 9, 12, 13, 18, 19, 22, 23, 24 & 42); and evenly split in five houses (Houses 5, 15, 17, 24 & 37). The results also show that six houses do not have spaces designated for service or convenience facilities use – i.e. kitchens, toilets and bathrooms, because the outhouses accommodating these activities are not in the immediate vicinity of the house.

In the following set of analysis, the comparison is made between spaces designated for service and convenience use, and all spaces that have a culinary related footprint in terms of activity and storage of objects and food. The aim is to find out how dispersed culinary

related footprints are in the orowa houses irrespective of the availability of designated service and convenience spaces. This is intended to indicate how well culinary practice respects the integrity of service space boundaries. Service and convenience spaces in this instance encompass kitchens, bathrooms, toilets and storerooms, and spaces with a culinary related footprint refers to any space that may be also used for food preparation, dishwashing and storage of food and utensils, and this would include the kitchen, orowa, iyara, veranda and so on. The number of spaces employed in culinary activity and storage is compared to the number of spaces allocated for service and convenience use overall by subtracting the percentage number of culinary mapped spaces from the service spaces. If more spaces are used for culinary related activity than service spaces, then the difference will be in the negative, and the chart will show the bar below the line of origin, but if culinary related activity and storage spaces are less than service spaces, then the difference will be positive and the bar will be above the line of origin as in Fig 5.11 below:

House No	**15**	**17**	**3**	**22**	**18**	**5**	**6**	**13**	**9**	**2**	**7**	**20**	**37**	**24**	**12**	**23**	**19**	**8**	**1**	**25**
% Service Spaces	11	11	27	0	0	9	8	0	0	31	0	7	14	14	7	12	12	0	22	14
% Culinary Spaces	67	44	55	82	36	42	58	42	38	69	69	38	57	14	47	44	44	35	39	45

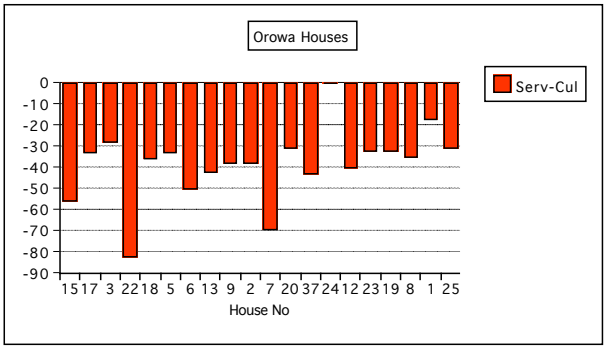


Table 5.8 comparing the percentage of spaces for culinary and service use & Fig 5.11 – chart showing the relative dominance of culinary related spaces with respect to service spaces

The chart shows that more spaces are used for culinary related activity than for service spaces overall, which suggests that culinary related activity have a significant presence on the footprint of the house. A comparative chart will be analysed for rooming and modern houses in Chapters 6 and 7 to follow.

Table 5.9: Summary of the space syntax results for the culinary-mapped spaces:

	Orowa	Backyard	Iyara	Outside	Kitchen	Front veranda
Integration	3.266	1.395	1.052	0.827	0.815	1.209
Depth	2.1	3.25	3.05	1.0	3.9	2.0

The table shows that the *orowa* is the most integrated space, and is on average two step depths from outside space and consists of mainly through-circulation (type B) and ring and double-ring spaces (types C and D), but no terminal (type A) spaces. The *iyara* is more segregated, three step depths and is made up of mainly of type A spaces.

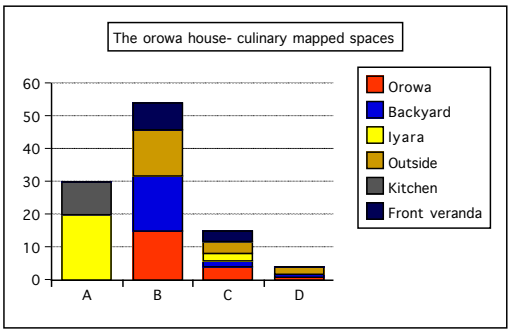


Fig 5.12 – The distribution of type A,B ,C,D culinary mapped spaces in the orowa house

The vast majority of culinary mapped spaces tend to be type B (through-circulation) spaces, which suggests that the transition spaces are constituted by activities. The type C spaces tend to be on a ring with outdoor spaces such as backyards and frontyard, and the type A space (terminal) are the iyara and kitchen, which also show the two main terminals for retrieval and work respectively. The kitchen is the most segregated of the culinary-mapped spaces as well as the deepest. The backyard is more integrated than the frontyard but obviously deeper, and both are made up of through-circulation (type B) spaces. Having established the spatial properties of the culinary-mapped spaces the study is equipped to analyse the distribution of activities and storage within spatial boundaries in terms of spatial separation, spatial co-presence and boundary fluidity in order to see how status, solidarity and social mobility are manifested.

Two other concepts needs to be addressed:

- Multi-function: The multifunctional use of space for living and service activities
- Boundaries: The flexibility or fluidity of activities within spatial boundaries in relation to space use implied by space labels.

The results show that a considerable amount of daily domestic activities are carried out in the public collective spaces (i.e. the orowa, veranda and backyard), which means that domestic activities have a significant public presence. Yet, not all culinary-related activities, objects, food and people are spatially co-present here. It is the argument of this thesis that components of these variables are either kept together or kept apart by a combination of social and spatial logic. It is therefore pertinent that the analysis moves on to ascertain the manner in which this usually occurs.

ACTIVITIES AND STORAGE PATTERNS IN THE USE OF THE CULINARY-MAPPED SPACES:

From the responses of the fieldwork, the culinary mapped spaces in orowa houses are the *orowa*, backyard, frontyard, *iyara*, storeroom, front veranda, and the detached kitchen. Table 5.10 summaries the distribution of activities, utensils and food stored in the various culinary-mapped spaces in all the orowa houses. The five culinary related activities are eating, dishwashing, cooking, foodprocessing and ceremonial cooking. Equipment are categorised into implements and facilities, after Flannery (1972), described in Chapter Three – Yoruba household and houseform. Generally, implements tend to be portable, such that they can be stored in one place and retrieved for use elsewhere, whilst facilities tend to be fixed and used in the places where they are situated. Food has been classified into two categories, the raw foods and the transformed foods (*using the nature/culture theme of Levi-Strauss 1964,1969).* The raw foods consist of the durable foods (grains, cereals, tubers), and foods susceptible to decay (meats, fish, dairy, fruits and vegetables); and the transformed foods consist of cooked foods, processed foods, and canned foods.

Table 5.10: Matrix of the distribution of culinary activity, and storage of implements, facilities and food in all the spaces. (Details are found in Appendix Five: House/Activity/Storage Matrix)

Orowa Houses	**ACTIVITY**			**EQUIPMENT STO.**		**FOOD STO.**		**Total**
	Eating	Cooking, foodprocessing, ceremonial cooking.	Dish-washing	Imple-ments	Facilities	Raw	Trans-formed	
Orowa	8	15	1	10	13	9	4	**60**
Iyara/ parlour	15			20	10	17	17	**79**
In-out kitchen/ dining		11	2	10	11	5	2	**41**
Frontyard/ veranda	4	19	10	1	3	1		**38**
Store/ loft				10				**10**
Backyard		13	10	1	7	1		**32**
TOTAL	**27**	**58**	**23**	**52**	**44**	**33**	**23**	**260**

The table records two hundred and sixty responses for six spaces, or 43.33 responses per space. The *iyara* has the highest frequency for culinary-related activity, i.e. for eating, and the storage of food and utensils, and, in particular, the use of facilities (fridge). Food-preparation activities (cooking, foodprocessing and ceremonial cooking), and dishwashing take place in the shared and communal spaces, namely the orowa, kitchen, frontyard and backyard. Dishwashing tends to take place more in the open than enclosed spaces. It is worth to note that because these activities would tend to take place in a sequence, i.e. from cooking, to eating and dishwashing, these distribution of activities may not occur in the same time or space frame, although, where individual resident households work to different timetables, the spatial and time co-presence of activity may occur, as the space use and timing of their activities can then coincide. Implements tend to be stored more in enclosed spaces – room, kitchen and orowa and less in the frontyard and backyard, whereas, facilities are found in places where they are used, such as the wells in the yard, stoves in the cooking space. Fridges are found in the main house, mainly in the *iyara*, where there is an electric socket (See Table 5.11 below)

Table 5.11: Storage of culinary-related equipment in orowa houses. Details are found in Appendix Five – under House Activity Space Matrix: Orowa house

	IMPLEMENTS				**FACILIITIES**			
	Cooking Utensils	Mortar/ grinding stone	Electrical appliance	Ceremonial cooking utensils	Stoves/ hearth	Fridge/ Freezer	Wells / Taps	
Orowa	20	20	1	2	9	1		**53**
Iyara / Parlour	20		9	2		9		**40**
Store / Pantry / Loft	3	1	1	10				**15**
Indoor kitchen / Dining		2			4			**6**
Backyard		2		3	4		6	**15**
Outhouse kitchen		3		1	7			**11**
Frontyard					2		3	**5**
Total	**43**	**28**	**11**	**18**	**26**	**10**	**9**	**145**

The orowa is the most used space for the storage of cooking utensils, i.e. pots, pans, plates, knives including the mortar and grinding stone. The *iyara* has second highest frequency for storage for cooking utensils, and the highest space for electronic appliances and the fridge, with the fridge and electronic goods being status goods. The mortar and grinding stone are found mostly in the cooking spaces – orowa, kitchen and yards, and none in the

iyara or storerooms. Electrical appliances are kept mainly in the iyara, close to where they will be used, and ceremonial cooking utensils are kept mostly in the store, or loft, away from regular access. However, the designated kitchen spaces, both internal and external, are the least used spaces for storage of the portable utensils, but mainly accommodate the facilities – namely the hearth and stoves. With regards to facilities, only nine orowa houses have wells in their immediate vicinity, with six in the backyard and three in the frontyard. There is also a possibility that wells were shared with neighbouring houses. Four houses have stone hearths in the yard, and almost all had kerosene stoves in the orowa or kitchen. House 15 and 25 used the traditional clay urn (*amu*) in the yard, but most households have switched to plastic jerry cans for fetching and storing water. Ten households had access to a fridge, kept mainly in the iyara in nine houses, and the orowa in only one house (House 13). Four houses (Houses 2, 12, 13 & 24) shared their fridge with other family households.

Storage choices for food varied depending on how soon after purchase and preparation the food is processed or consumed. Some foods were eaten immediately, others were sun-dried, refrigerated, or stored in soup cupboards in the *orowa* and *iyara*, or in designated storage spaces like the pantry, loft, or storeroom, or in baskets on the bedroom floor. Therefore, the data was collated according to storage by natural preservation, which includes sun-drying or fermenting; the use of storage vessels which include soup cupboards, kitchen cabinets and drawers, and the fridge or freezer; and the use of storage spaces, and they include the storeroom, larder, pantry, loft, bedroom and parlour.

			STORAGE VESSELS			**STORAGE SPACES**	
	Eaten immed.	Sun-dried/ fried	Cpd in iyara	Cpd in kitchen/ orowa	Fridge /freezer	Storeroom Pantry, Loft	Iyara
RAW							
Perishables (20)	7	3			10		
Ingredients (18)				3		2	13
Tubers (20)			17	2		1	
Grains (19)			11	4		4	
Fruits (14)	3		2	1	5	1	
Vegetables (11)	1	2		2	1	4	1
TRANSFORMED							
Cooked foods(18)			11	1	5	1	
Canned foods(13)			7		4	2	
TOTAL	**11**	**3**	**50**	**12**	**28**	**14**	**13**

Table 5.12: Storage of food. Details of house numbers are found in Appendix Five – under House Activity Space Matrix: Orowa house

The results show that most people stored foods in the iyara, either in soup cupboards, in containers or cartons, as well as in fridge/freezers which are also situated there, than in the orowa and designated kitchen. For example, House 15 keeps the more expensive perishables, fruits, vegetables and cooked and canned foods in the fridge in the room, but the cheaper tubers, grains and ingredients in a soup cupboard in the orowa. Even when households have access to a storeroom or pantry, they may still store some foods like tubers in the rooms as in House 5 where the respondent stored tubers on wooden slats on the *iyara* floor because the store did not have window ventilation. The results also show that thirteen out of twenty households preserve perishables by sun-drying, smoking, frying or refrigeration, whilst the other seven cook it for immediate consumption. The study found in general, that perishable foods were not always stored in large quantities for a number of reasons. First, animal-based proteins are expensive foods, and the low-income earners that lived in this area cannot afford to buy these foods in bulk. Secondly, though ten out of twenty houses had access to a refrigerator, they rarely preserved raw meats and fish in there for long. The fridge was mainly used for cooling water, beer, milk and ice-cubes, and keeping cooked foods. Thirdly, houses in Enuwa are very close to the local markets, so most residents are able to buy their foods fresh, and did not need to store food. Fourthly, meat and fish is traditionally preserved by smoking, frying or sun-drying, and milk is made into cottage cheese (*wara)* and kept in water. Fruits tend to be eaten immediately, and vegetables are cooked fresh. Cooking ingredients like condiments, salt and spices, and cooked stews were either kept in the fridge or in a soup cupboard. Soup cupboards were usually secured with a padlock, particularly when situated in the orowa, which is communal and shared with other households or kin. The rivalry between households usually generated a fear of poisoning by relatives, co-wives, co-tenants etc, thereby justifying the security measures employed.

In the following section, activity and storage will be examined in each space in the following order, starting with the orowa, going on to the iyara, the kitchen, then the backyard and frontyard together as outdoor spaces, and the front veranda.

The chart is colour coded as follows: Cooking-Red; Dishwashing-Blue; Foodprocessing-Yellow; Ceremonial cooking- Green; Eating- Peach; Storage of implements- Purple; Fridge – Light turquoise; Storage of food -Pink

OROWA HOUSE						
House No	OROWA	FRONT VERANDA	FRONTYARD	BACKYARD	KITCHEN	IYARA
A01	COOKING		EATING	DISHWASHING		IMPLEMENT STORAGE
	EATING		CEREMONIAL COOKING	CEREMONIAL COOKING		FOOD STORAGE
	FOODPROCESSING			IMPLEMENT STORAGE		
	FOOD STORAGE					
	IMPLEMENT STORAGE					
A02	IMPLEMENT STORAGE	COOKING	COOKING	DISHWASHING	COOKING	EATING
		EATING	DISHWASHING	CEREMONIAL COOKING	FOODPROCESSING	IMPLEMENT STORAGE
		IMPLEMENT STORAGE	CEREMONIAL COOKING		IMPLEMENT STORAGE	FOOD STORAGE
					FOOD STORAGE	FRIDGE/FREEZER
A03	COOKING			DISHWASHING	COOKING	EATING
	IMPLEMENT STORAGE			CEREMONIAL COOKING	FOODPROCESSING	IMPLEMENT STORAGE
	FOOD STORAGE					FOOD STORAGE
A05	COOKING			DISHWASHING		EATING
	FOODPROCESSING			CEREMONIAL COOKING		IMPLEMENT STORAGE
	IMPLEMENT STORAGE					FOOD STORAGE
	FOOD STORAGE					
A06	COOKING		DISHWASHING			EATING
	EATING		FOODPROCESSING			IMPLEMENT STORAGE
	IMPLEMENT STORAGE		CEREMONIAL COOKING			FOOD STORAGE
	FOOD STORAGE		EATING			
A07	EATING		EATING	DISHWASHING	COOKING	
	FOOD STORAGE		CEREMONIAL COOKING	FOODPROCESSING	IMPLEMENT STORAGE	
A08	COOKING			DISHWASHING		IMPLEMENT STORAGE
	EATING			CEREMONIAL COOKING		FOOD STORAGE
	FOODPROCESSING					FRIDGE/FREEZER
	FOOD STORAGE					
	IMPLEMENT STORAGE					
A09	COOKING		CEREMONIAL COOKING	DISHWASHING	COOKING	EATING
	FOODPROCESSING				IMPLEMENT STORAGE	IMPLEMENT STORAGE
	IMPLEMENT STORAGE					FOOD STORAGE
	FOOD STORAGE					
A12	EATING			DISHWASHING	COOKING	EATING
	FOODPROCESSING			CEREMONIAL COOKING	IMPLEMENT STORAGE	IMPLEMENT STORAGE
	FOOD STORAGE					FOOD STORAGE
	IMPLEMENT STORAGE					FRIDGE/FREEZER
A13	COOKING	DISHWASHING	CEREMONIAL COOKING			FOOD STORAGE
	EATING					
	FOOD STORAGE					
	FRIDGE/FREEZER					
	IMPLEMENT STORAGE					
A15	COOKING	COOKING	COOKING	COOKING	COOKING	EATING
	FOODPROCESSING	DISHWASHING	CEREMONIAL COOKING		IMPLEMENT STORAGE	FOOD STORAGE
	FOOD STORAGE					FRIDGE/FREEZER
	CEREMONIAL COOKING					
A17		DISHWASHING			COOKING	EATING
					CEREMONIAL COOKING	IMPLEMENT STORAGE
					IMPLEMENT STORAGE	FOOD STORAGE
					FOOD STORAGE	
A18	COOKING		DISHWASHING	COOKING		EATING
			CEREMONIAL COOKING			IMPLEMENT STORAGE
						FOOD STORAGE
A19			CEREMONIAL COOKING	DISHWASHING	COOKING	EATING
					FOODPROCESSING	IMPLEMENT STORAGE
					IMPLEMENT STORAGE	FOOD STORAGE
					FOOD STORAGE	FRIDGE/FREEZER
A20	COOKING		DISHWASHING	CEREMONIAL COOKING	COOKING	EATING
	FOODPROCESSING		CEREMONIAL COOKING		IMPLEMENT STORAGE	IMPLEMENT STORAGE
	IMPLEMENT STORAGE				FOOD STORAGE	FOOD STORAGE
	FOOD STORAGE					FRIDGE/FREEZER
A22	COOKING	COOKING	DISHWASHING	CEREMONIAL COOKING		EATING
		FOODPROCESSING		FOODPROCESSING		IMPLEMENT STORAGE
						FRIDGE/FREEZER
						FOOD STORAGE
A23	COOKING	CEREMONIAL COOKING	DISHWASHING	DISHWASHING		EATING
	EATING		CEREMONIAL COOKING			IMPLEMENT STORAGE
	FOODPROCESSING					FOOD STORAGE
A24	COOKING			CEREMONIAL COOKING	COOKING	EATING
	EATING			FOODPROCESSING	DISHWASHING	IMPLEMENT STORAGE
					IMPLEMENT STORAGE	FOOD STORAGE
					FOOD STORAGE	FRIDGE/FREEZER
A25	COOKING	COOKING	COOKING	CEREMONIAL COOKING	DISHWASHING	EATING
	DISHWASHING				FOODPROCESSING	IMPLEMENT STORAGE
					IMPLEMENT STORAGE	FOOD STORAGE
					FOOD STORAGE	FRIDGE/FREEZER
B37	COOKING	COOKING	CEREMONIAL COOKING			EATING
	FOODPROCESSING	DISHWASHING				IMPLEMENT STORAGE

Table 5.13 - Distribution of activities and storage in Orowa houses

In Table 5.13, areas shaded in grey represent spaces that are not present in that house, e.g. House 1 does not have a veranda, and House 5 does not have a kitchen. The distribution also shows how the same spaces are used for multiple activities in different combinations, as well as how the same activity takes place in several spaces. Storage activity appears in almost every space except the frontyard, and in only one house (House 2) in the front veranda, and in one house (House 1) in the backyard, which could suggest that open spaces are not generally considered secure for keeping items. Storage in this sense refers to the place where an item is kept until it is retrieved for use, and then returned to, and does not necessarily mean cupboards and storerooms, and in some instances, items can be in placed in full view such as in the orowa. The table shows that cooking is the prevalent activity in the orowa, eating is prevalent in the iyara, ceremonial cooking and dishwashing in the frontyard and backyard, and foodprocessing is distributed across the orowa, and the open spaces.

The discussion above has looked at how activities and storage of food and utensils are dispersed in different spaces in the house. In the following section, the pattern of activities and storage patterns within the same spatial boundary and space label will be presented. These spaces are the orowa, iyara, kitchen, and the outdoor spaces. The purpose is to see which combination of activities and storage items are found to share a spatial boundary, which will then imply which ones are excluded, that is in terms of things found together and things kept apart.

Activity and storage in the *orowa*

The *orowa* is the most integrated space in the house, and in terms of distributedness, a type C or D space. It ranges from one step to about three steps from outside, and it has a high degree of control and connectivity to most spaces in the domestic environment. Table 5.13 below shows that certain activities do not occur in some spaces, such as there is no eating in the kitchen or backyard, and no one carries out dishwashing in the *orowa*. Likewise, the storage patterns suggest that because the fridge is in room, therefore for the seven houses (House 8, 12, 19, 20, 22, 24 & 25) that have access to a fridge, food, both raw and transformed would tend to be kept there. Furthermore, dishwashing does not usually takes place in internal spaces except in three houses (House 18, 25 & 24) in the sample.

Table 5.14 summaries the combination of activities (not storage) in the orowa

	Activities in the orowa	House No	Total
1	None	2, 17, 19	3
2	Cooking only	3, 18, 22	3
3	Eating only	7	1
4	Cooking and Eating	6, 13, 24	3
5	Cooking and foodprocessing	5, 9, 20, 37	4
6	Cooking, Eating, Foodprocessing	1, 8, 23	3
7	Cooking, Foodprocessing, Ceremonial Cooking	15	1
8	Cooking and Dishwashing	25	1
9	Eating and Foodprocessing	12	1

Mathematically, there are 31 possible combinations of use from five different activities in one space (*i.e. 5C1 + 5C2 + 5C3 + 5C4 + 5C5: Total 31*). The analysis shows that nine of the thirty-one different combinations are found. Cooking takes place in the orowa in fifteen houses, and in combination with eating, foodprocessing and ceremonial cooking in twelve of the fifteen houses. Cooking also takes place in alternative locations in eight of the thirteen houses, such as in the kitchen in four houses (House 3, 7, 20 and 24), frontyard and veranda in another four (Houses 15, 22, 25 and 37). Foodprocessing takes place in the orowa in eleven houses, followed by eating in eight houses. Dishwashing only takes place in the orowa of House 25, and in this case, the backyard orowa, with the front *orowa* being used to store cooking utensils, water urns and soup cupboards, but not eating, foodprocessing or ceremonial cooking takes place here. Eating takes place in the orowa in eight houses, implements are stored in nine houses, and food in five houses (See Table 5.14 above).

Table 5.15 below is a summary of implements and facilities in the orowa.

	Implements	Facilities
Utensils – pots, pans, knives etc	3	
Mortar and grinding stone	12	
Electrical appliances – kettles, blenders	3	
Ceremonial cooking utensils – pots, pans etc	2	
Stoves, cookers etc		13
Fridge/ Freezer		1
Total	20	14

With the exception of the mortar and grinding stone, relatively fewer implements are stored in the orowa, i.e. two to three out of twenty households (See Table 5.15). Bearing in mind that households do not have exclusive control over the orowa, therefore, if they store items in the orowa, they tend to restrict accessibility by locking it in soup cupboards in the *orowa* or kitchen. However, implements like the mortar and pestle, and the grinding stone are bulky and heavy, and though they could be moved to the veranda or well for cleaning, they would not generally be located too far from where they would be used, and yet would not classify as facilities because they are working artefacts. Furthermore, these implements are hardy and very durable, and not easy to damage or steal, so they would seem to exercise less control over them.

With regards to facilities, the two-burner kerosene stoves used by most households can either taken to the *iyara* after use, or the fuel jar may be removed and the burner and casing left in the *orowa*, because the kerosene is the valuable consumable in the stove that can be taken by others, and which has a running cost.

The use of electronic implements (kettles, blender) and facilities (fridge, freezer, electric stoves) are restricted to the location of electric socket outlets, which would tend to be found in the rooms, and not the orowa. This means that where these electronic appliances are used, unlike other implements, they are not retrieved from storage for use in the cooking space, rather, it is the user that moves between the cooking space and the storage space. Generally, electricity as utility is preferred for the operation of televisions, radios, stereos, fridges and other status goods more than for cooking-related appliances. For instance, thirteen out of nineteen orowa houses in Enuwa and the one house in Akarabata have electric power, but only two of them used electric stoves. All the others relied on kerosene as their source of fuel for cooking and lighting. Only one house (House 13) kept their fridge in the orowa, and in this instance, the space used is an alcove off the main orowa, which is another convex space (See Fig 5.12 below). Also, the fridge was used to cool drinks for sale and is padlocked in order to prevent other household members taking the drinks without paying for it.

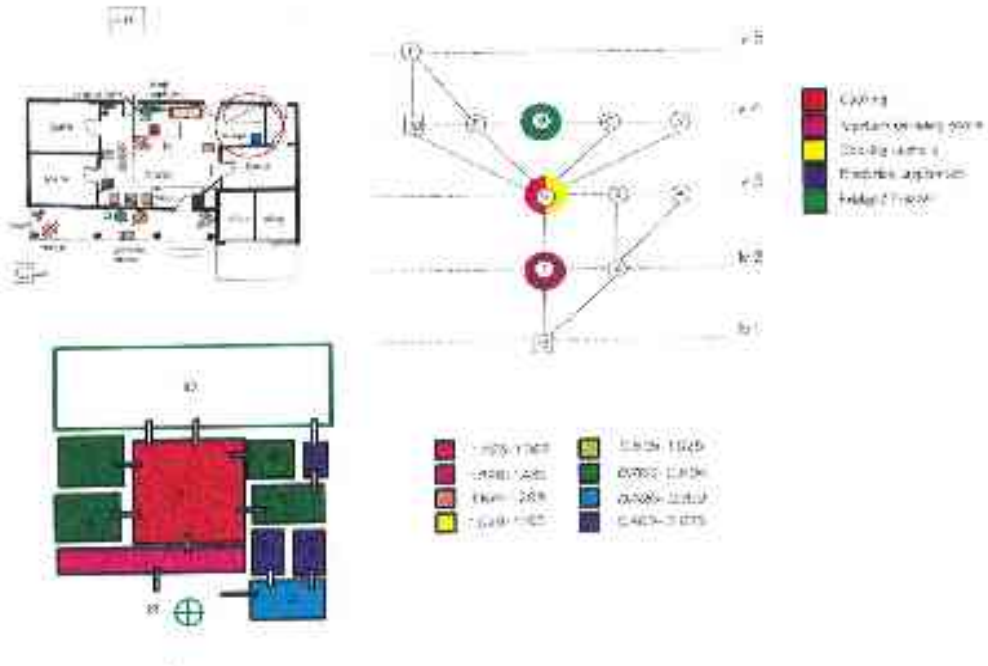


Fig 5.13 – Floor plans, convex maps and j-graph of House 13.
The location of the fridge is circled in red

The only portable electronic appliance that could be used for cooking found in the houses was the immersion heater, also called the boiling ring, used for boiling water. *(Some households had the electric iron)*. The boiling ring does not tend to be removed from the *iyara*, and, it tended to be used for heating water for bathing, and making tea, coffee or drinking beverages, more than for cooking. Ceremonial cooking utensils tend to be kept in the roof loft (*aja)*. The *aja* is directly above the orowa and it usually supported on a *raffia* mat ceiling draped across the roof tie beams. Generally, the *aja* tends to be used for storage of items that are used occasionally, as well as for smoking food items, which will be discussed in greater detail below. (New) In terms of spatial co-presence of activities, all five activities and storage are found to take place in the orowa, with cooking being the dominant activity and dishwashing occurring in only one house.

Activity and storage in the *iyara*

From table 5.9, the *iyara* is a type A space in eighteen houses and type C in two houses (Houses 13 & 37) out of twenty houses, and it is the one of most segregated of the culinary-

mapped spaces. The *iyara* is the second most integrated culinary-mapped space in three houses, third place in fifteen houses and in fourth place in two houses. In terms of the colour-coded mapping of integration (see Table 5.2), the iyara is ranked as segregated (i.e. three at green, twelve at light-blue, and five at dark-blue).

Table 5.16 below is a summary of the combination of activities and storage in the iyara.

	Activities and Storage in the iyara	House No	Total
1	None	7	1
2	Eating only	37	1
3	Eating, Implement storage	1	1
4	Eating, Implements, Food storage	3, 5, 6, 9, 17, 18, 23	7
5	Eating, Implements, Food storage, Fridge	2, 12, 19, 20, 22, 24, 25	7
6	Eating, Food storage, Fridge	15	1
7	Implements, Food storage, Fridge	8	1
8	Food storage only	13	1

There are sixteen possible combinations of use from four different activities in one spaces given by the equation *4C1 + 4C2 + 4C3 + 4C4 + None(1) = Total 16.* Eight of these possible combinations occur, and eating is the predominant activity, taking place in the seventeen out of twenty houses, and in combination with storage of food and implements in seven houses, and in combination with food, implements and the fridge in another seven houses (see table 5.16).

The storage of implements and facilities in the *iyara* are as follows (see table 5.10):

- Utensils = 20 houses
- Electrical appliances = 9 houses
- Fridge = 9 houses
- Ceremonial cooking utensils = 2 houses

The storage of food in the iyara is as follows (see table 5.11):

- Tubers = 17 houses
- Ingredients = 13 houses
- Grains = 11 houses
- Cooked food = 11 houses
- Perishables = 9 houses
- Canned foods = 7 houses

In comparison to the *orowa*, the higher status activity of eating takes place in the *iyara* in seventeen houses than the orowa in eight houses. Likewise, electrical appliances as well as fridges are found in the in the iyara in nine houses to only one house in the orowa. Most perishable foods tend to be refrigerated if not consumed immediately and so they will be found in the *iyara*. Canned foods are expensive high status foods, also found in the *iyara.* Cooked foods, grains, ingredients and tubers are also mainly found in the *iyara* than any other space, and the second highest space for storage frequency tends to be either the storeroom or a locked cupboard in the orowa. This suggests that security of foodstuff is one of the main considerations for food storage in the orowa house.

In terms of spatial solidarity, iyara in this sense can be regarded as a place of consumption (of food) and of security because of its controlled accessibility for storage, whereas the orowa is a place of production. In terms of fluidity of activities and storage across the boundaries, three activities, namely eating, implement storage and food storage are found to traverse the boundaries between the iyara and orowa. Eating is found to take place in the lower status orowa in 8 out of 20 houses. Implement storage takes place in the orowa in 10 houses and in the iyara in 17 houses. The mobile implements like cooking utensils tend to be kept in the room, or in the cupboards in the orowa. Food storage takes place in the orowa in 11 houses and in the iyara in 18 houses. The storage of implement takes place in the orowa to a higher extent than in the iyara, whereas, food storage is found more in the iyara than in the orowa.

Activity and Storage in the kitchen

There are eleven houses with designated kitchens, and their location are as follows:

- Detached kitchen (Houses 3, 9, 15 & 20) – 4 houses
- Semi-detached kitchen (Houses 7, 19 & 25) – 3 houses
- Integral in main house (House 2, 12, 17 & 24) – 4 houses

The detached and semi-detached kitchens are situated in the backyard, and the integral kitchens tend to be situated in one of the spaces connected to the orowa (See Fig 5.13 p157 below). None of the three kitchens have plumbing, drainage nor electric power, though House 2 has electric lighting. All three houses also have some culinary implements in the orowa in addition to having a kitchen, though the detached kitchen seems to have the most, and the integral kitchen, the least, which may be attributed to the need to have some

culinary facilities in indoor spaces to use when it is dark outside (early morning/ late evening), as well as in poor weather, whereas, the semi-detached kitchen can be accessed under the cover of a roof canopy and is just outside the back door and could benefit from artificial lighting in the orowa if needed.

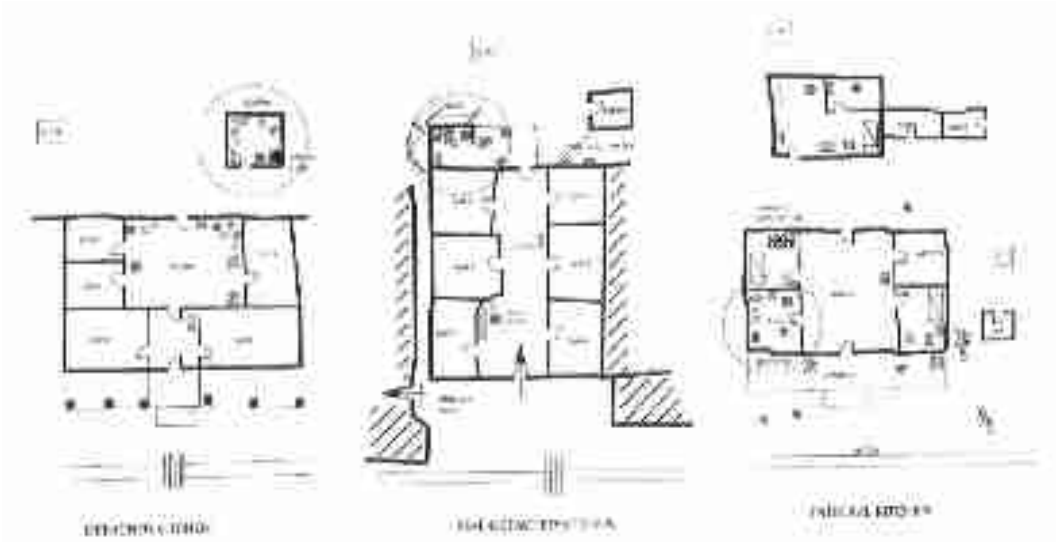


Fig 5.14- Floor plans of three kitchen types in orowa houses (kitchens circled in red)

From Table 5.2 p139, the kitchen is one of the most segregated spaces in the house, and amongst the culinary mapped spaces, and is colour mapped as light blue and dark blue in all eleven houses. The kitchen is situated third in the rank order of integration in House 2, where the orowa lies in a similar configurational position to the *iyara*, and consequently an identical integration value, with the orowa and backyard ranking higher, and the outside space ranking lower. The kitchen is ranked fourth in five houses (Houses 3, 12, 17, 19 & 24) with the outside space ranking lower in three of them expect House 24 where the backyard ranks lower. The kitchen is ranked fifth (and lowest) in five houses (Houses 7, 9, 15, 20 & 25) of all culinary mapped spaces. The results therefore show that where the kitchen is within the main house, it is ranked higher than the outside, and where it is detached and semi-detached (except in House 19), it is ranked equal or lower to the outside. The kitchens are all type 'A' spaces and the step depth from outside is as follows:

- 3 steps in two houses: Houses 12, 24
- 4 steps in five houses: Houses 7, 15, 17, 19, 20
- 5 steps in one house: House 9
- 6 steps in one house: House 25

In relation to the total step depth and mean step depth of the whole house, the results are as in Table 5.17 below:

House No	Depth of kitchen	Total Depth of house	Mean Step depth (k)
2	3	5	3.580
3	4	4	3.300
7	4	6	2.920
9	5	6	2.900
12	3	7	3.500
15	4	5	2.750
17	4	5	2.900
19	4	5	2.930
20	4	5	2.500
24	3	4	2.150
25	6	7	3.810

With respect to the total depth of the house, the kitchen lies at the deepest part of the orowa houses in only one house (House 3) out of the eleven houses with kitchens, and is within one to two steps of being the deepest space with the exception of House 12, where it is four steps shallower than the spaces that lie in the deepest part of the house. In Houses 2 & 12, the kitchen is also shallower than the mean step depth (k), but deeper that 'k' in the other nine houses.

Table 5.13 shows the distribution of activities and storage in the kitchen, and they include cooking, foodprocessing, ceremonial cooking, dishwashing, food storage and implement storage. None of the houses had the fridge in the kitchen, even in houses were the kitchens were part of the main house. The summary of the matrix of combination of activities and storage in the kitchen is shown in Table 5.18 below:

Table 5.18 below is a summary of the combination of activities and storage in the kitchen.

	Activity and Storage in the kitchen	House No	Total
1	Cooking and implement storage	7, 9, 12, 15	4
2	Cooking and foodprocessing	3	1
3	Cooking, foodprocessing, implement storage and food storage	2, 19	2
4	Cooking, implement storage, foodstorage	20	1
5	Cooking, dishwashing, implement storage, food storage	24	1
6	Cooking, ceremonial cooking, implement storage, food storage	17	1
7	Dishwashing, foodprocessing, implement storage, food storage	25	1

Out of sixty-four possible combinations of six activities in one space (6C1 + 6C2 + 6C3 + 6C4 + 6C5 + 6C6 + None = 64), seven of them are found, with the mode combination being cooking with implement storage in ten houses, and in combination with other culinary related activities in six of the ten houses. Group 5 is the only house where dishwashing takes place in the kitchen. It is also the space where all activities (i.e. cooking, dishwashing) and storage (of food and implements) are within the same spatial boundary as required by the Western work triangle, whereas the others only accommodate two of the three basic nodes, and dishwashing tends to take place in other spaces as it is considered too messy for the kitchen. Furthermore, none of the houses eat in the kitchen, because the respondents consider the kitchen as neither comfortable nor appropriate for eating, and some stated as follows: "eating is the reward of cooking and could not be enjoyed in the place of labour". Others felt the soot on the walls of kitchen made it unattractive for eating, and as the male members of the household would not be expected to eat in the kitchen, the females felt they had to eat with the males at the same time and space to demonstrate that the food was not 'poisoned'.

The use of outdoor spaces – backyards and frontyards

Kitchen outhouses in form of detached or semi-detached structures are found in seven out of twenty houses as stated above. – i.e. (Houses 3, 7, 9, 15, 19, 20 and 25), and these structures are located in the backyard. With the exception of House 7, all kitchens have walls and a doorway, but when in use, the door is usually left open for the emission of cooking fumes. House 7 is an open shed consisting of a roof and posts with low walls.

The following table shows the distribution of convenience facilities accommodated in detached or semi-detached outhouses in the sample:

	OUTHOUSES	House No	Total
1	Kitchen only	9, 15, 20	3
2	Bathroom only	5, 37	2
3	Toilet only	2 (adjacent to small chalet)	1
4	Kitchen and Bathroom	7	1
5	Bathroom and Toilet	1, 23	2
6	Kitchen, Bathroom and Toilet	3, 19, 25	3
7	Other facility	6 (workshop shed)	1
8	None	8, 12, 13, 17, 18, 22, 24	7

Table 5.19: Orowa House Outhouses

The outhouses are either detached structures as in Houses 1, 2, 3, 5, 6, 7(bathroom), 9, 15 & 20 or semi-detached as in Houses 7(kitchen), 19, 23 & 25. The semi-detached structures tend to be of a more durable construction than the detached structures, as they would have been built at the same time as the main house, and would use similar materials, whereas, the detached structures can be built subsequently. As such, none of the detached outhouses have pipe-borne water supply, plumbing, drainage to them, though there is electricity supply to the main houses, but the semi-detached outhouses had electricity supply, mainly for lighting.

In terms of water source, houses (A01, A02, A03) have wells in the sideyard, A06, A15 have wells in the backyard, A24 in the courtyard, and A17, A19 in the frontyard. Houses A06, A12, A13, A15, A17, A24 and A25 are not next to main roads, and as such do not have any gutters next to them. As these road-side gutters are the main facility for drainage and water disposal, these houses would have to rely more on surface run-off for disposal.

The following table shows the distribution of use of the open backyard. This does not include houses where the kitchen is in an outhouse though situated in the backyard in order to isolate cases of cooking in the open without roof covering.

	Activities in the backyard	House No	Total
1	None	6, 13, **15**, 17, 18, 37	6
2	Dishwashing only	**9**, 19, 23	3
3	Ceremonial cooking only	**20**	1
4	Dishwashing and ceremonial cooking	1,2 **3**, 5, 8, 12, **25**	7
5	Dishwashing and foodprocessing	**7**	1
6	Ceremonial cooking & foodprocessing	22, 24	2

Table 5.20: Activities in the backyard *(Houses with kitchen outhouses are indicated in bold).*

Out of a possible thirty-one combinations (five activities in one space) of use of the open backyard, only 6 occur, with dishwashing and ceremonial cooking as the main mode combination. Dishwashing takes place in the backyard in eleven houses, followed by ceremonial cooking in ten houses, with respondents citing the messiness of dishwashing and the hazardous nature and multiple cooks needed in ceremonial cooking as the reasons for using outdoor spaces. Six houses do not use their backyard for culinary activity, and

three use it for foodprocessing. Furthermore, none of these houses use the open backyard for cooking where there is a designated outhouse kitchen. The backyard is however not used for eating in any of the orowa houses.

The situation is somewhat different with the frontyard as seen in the following table:

	Activities in the frontyard and veranda	House No	Total
1	None	3, 5, 8, 12, 24, 25	6
2	Cooking, Dishwashing, Ceremonial cooking	15, 37	2
3	Cooking, Dishwashing, Ceremonial cooking and Eating	2	1
4	Dishwashing only	17, 22	2
5	Dishwashing, Ceremonial Cooking	13, 18, 20, 23	4
6	Dishwashing, Foodprocessing, Ceremonial cooking and Eating	6	1
7	Eating and Ceremonial cooking	1, 7	2
8	Ceremonial cooking only	9, 19	2

Table 5.21: Activities in the Frontyard

Eight activity-combinations of space use of the frontyard and veranda are found out of a possible thirty-one. The mode use is for ceremonial cooking in twelve houses, followed by dishwashing in ten, eating in four, daily cooking in three, and foodprocessing in one house. Here, cooking takes place in the open, usually with firewood on stone hearths (*aro).* Six houses do not use their frontyard or veranda for any culinary activity. In nineteen houses (except House 25), dishwashing takes place in the open spaces, i.e. front or back verandas, or frontyard and backyard. As there is no plumbing and drainage to sinks, water is fetched from the wells in the yard or from jerry cans in the orowa for dishwashing, the dishes and pots are then washed in bowls and the water is disposed as surface run-offs to the ground or open gutters, which is why these activities would tend to take place near to gutters or wells. Table 5.21 below is a comparative summary of the frequency of use of backyard and frontyard for culinary activity, including cooking in outhouse kitchens:

Activity	Frontyard / Veranda (no)	Backyard (no)
Cooking	3	6
Dishwashing	10	11
Ceremonial cooking	12	10
Foodprocessing	1	3
Eating	4	0
None	6	6no
Total frequency	30 instances	30 instances

Table 5.22: Comparing the use of frontyard and backyard

The results show that the backyard is slightly more used for daily cooking and like activity, but the frontyard is more used for ceremonial cooking and for the more presentable activity of eating, which suggests a Goffman – frontstage / backstage differentiation in the use of outdoor space.

Basically, the orowa, backyard, frontyard, and rooms are multi-purpose activity spaces. However, eating does not take place in the backyard, cooking does not take place in the iyara, and with the exception of House 25, dishwashing does not take place in the orowa. Furthermore, with the exception of House 15, all ceremonial cooking takes place outside.

Compatibilities and incompatibilities between space and activities:

From Table 5.13 p160 mapping the distribution of activities in each convex space, it can be seen that in some instances, eating takes place where food is cooked such as in the orowa and front veranda, along with other culinary activities like foodprocessing, dishwashing and ceremonial cooking, though there was usually a time separation between these cooking and eating, which suggests that eating as an activity may not necessarily be spatially incompatible with the other activities in terms of sharing the same type of space boundary, but rather functionally incompatible i.e. may not take place in particular spatial environments. For instance, it is the only activity not to take place in the backyard of any house surveyed, and takes place in the frontyard in only four of the twenty houses (Houses 1, 2, 6 & 7 – See Fig 5.14 below).

Fig 5.14: Floor plans of four houses that eat in the frontyard

Table 5.13 shows that eating and dishwashing are the activities least found in combination with cooking in the vast majority of the houses. Eating is mostly found with storage in the *iyara*, and cooking in the *orowa*, and dishwashing is mostly found with ceremonial cooking in the backyard and frontyard, and less with cooking and not with eating. In terms of eating, and from Fig 5.14 p 162 above, House 2 used the frontyard and a designated indoor kitchen room for daily cooking, and all four houses used the frontyard for ceremonial cooking. Houses 1 & 2 belong to the same family compound and have no kitchen as it was destroyed in the storms. Likewise, House 6 & 7 are kin and neighbours (*No 46 & 46b Olopo Street)*, and though House 7 has a detached outhouse kitchen in the backyard, it used the frontyard for ceremonial cooking. Of these four houses, only House 2 has a front veranda, others have a threshold entrance, which means in the these three houses, residents would have to sit in the open to eat in the frontyard, rather than under the shade of a veranda roof.

Bearing in mind that other orowa houses with verandas (House 3, 9, 12, 13, 15, 17, 18, 22, 23, 25 & 37) do not eat there even in hot weather, when the field study was conducted, it could suggest that there is a greater tendency not to eat in the open spaces perhaps except in relation to ceremonial dining. Several respondents felt eating was a private affair to be carried out away from the prying eyes of nosy relatives and neighbours, and would therefore use the orowa. Others argued that domestic animals – goats, chicken and dogs – that roamed the yards would make outdoor eating, an unpleasant experience.

Nevertheless, the fact that some houses still used the open spaces for activities that other households would not use, required further investigation. In orowa houses in Enuwa as stated above, the layout of other houses within the compound and with no fenced boundaries, also means that the backyard to one house will overlook the front entrance of another, which suggests that the incompatibility of the backyard for some activities may not be as a space label, but in terms of what other domestic activities take place there. As such, it is useful to seek for other spatial variables that may be implicated in this pattern.

Sensory proximity of activities

In order to address the above issues, it is necessary to query not just the other activities that that take place within a space, but what activities take place in adjoining and adjacent spaces, to see if they would influence how particular spaces were used.

Where the orowa is used for the main cooking activity, the adjacent and adjoining spaces are the *iyara*, the front veranda (or front yard) and the backyard. With the exception of House A01, convenience facilities like bathroom and toilets tend not to be visible from the orowa, as they tend to be situated away from the direct vista of the orowa in the backyard or in the sideyard. House A05 has the bathroom in the backyard but with its entrance oriented away from the orowa. However, when the designated kitchen is in the backyard as in Houses 3, 7, 9, 15, 20 & 25, the isovist would be over convenience facilities in the vicinity like toilets and bathrooms. In this study, the scope of the isovist is extended beyond the visual senses to the olfactory and auditory senses regarding activities in adjacent or perceptible spaces, termed the sensory proximity. This is an original application of this mode of analysis being applied and it was developed by the author to deal with the data in the study. Therefore, the next line of enquiry was to check what activities were permitted or forbidden in the cooking space with respect to spaces and activities visible, permeable or in sensory proximity to the cooking space.

From Table 5.13, regarding the distribution of foodprocessing in each space, it was observed that out of eighteen instances where foodprocessing activities were undertaken, eleven of them took place in the orowa (Houses 1, 2, 5, 8, 9, 12, 15, 17, 20, 23, 37), one in the frontyard (House 6), and six in the backyard (Houses 3, 7, 19, 22, 24 & 25). House 2 also used the designated indoor kitchen/*iyara*.

Foodprocessing is messy. Dishwashing is also messy, but unlike in foodprocessing, most households would not wash dishes in the orowa, but rather in the frontyard or backyard. Some respondents did not consider outdoor spaces hygienic enough for foodprocessing, because houseflies from the nearby toilets and bathrooms could contaminate the foods, so they preferred to use the orowa and then clean up afterwards.

This suggests that the sensory proximity of other activities would prevent the use of the outdoor space, even when it would practically seem the most suitable.

Of the 6 houses that used the backyard, 3 of them (Houses 3, 19 & 25) actually used an enclosed space in the form of the detached or semi-detached kitchen, whilst the other three (Houses 7, 22 & 24) used the open yard, and then, only House 7 used a space in the vicinity of the bathroom, which is usually an enclosed makeshift structure of corrugated

metal sheet walls and timber posts (See Fig 5.12 below). No toilets were found in the vicinity of any of the three houses.

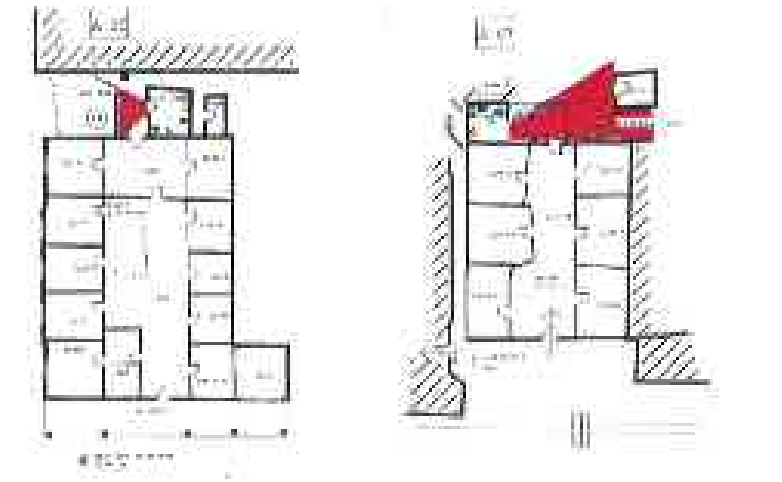


Fig 5.15: Isovists from the kitchen overlooking the backyard in Houses 7 & 25

A similar pattern was found in relation to eating, as discussed above, where some found the frontyard incompatible for eating, as it overlooked other backyards, the open gutters, the main roads, and the passers-by. The results suggest that the backyard is least used for eating, because of its sensory proximity to convenience facilities, and the frontyard is least for cooking and eating, because of its exposure to the open street, and the orowa is least used for dishwashing and ceremonial cooking, not so much for its sensory proximity to the rooms, but more for the messiness and the fire hazard they constitute respectively.

Step distance, boundary and spatial integrity

As part of the analysis on the distribution of activities, in the house, the step distance between the cooking space and ancillary activities is measured as described in Chapter 4-Research Methodology. From the justified graphs, the average step distance is measured by summing up all the step distances for dishwashing, eating, foodprocessing and ceremonial cooking, and dividing the result over the number of convex spaces used. If an activity takes place in the cooking space, then the step distance will be zero. This analysis will show how to what extent culinary related activities impinge on other spaces beyond the cooking space, and the strength of the boundary of the cooking space to accommodate all culinary-related activities and objects.

The average step distance in distance order is as follows in Table 5.23:

Cooking	Foodprocessing	Dishwashing	Eating	Ceremonial cooking	Average step dist.
Zero	0.85	1.389	1.689	1.87	**1.389**

The overall mean step distance/ measure of spatial integrity for activities is **1.389**
The detailed table for each house can be found in Appendix Six – Step Distance Data.

From the calculations, foodprocessing is within one step to the cooking space, and therefore strengthen the integrity of the boundary, whereas dishwashing and eating is more than one step away, and weakens the boundary. Furthermore, both eating and dishwashing weaken the boundary for different reasons, dishwashing for its messiness in relation to cooking, and eating, for its cleanliness, relative to cooking, as seen from the spatial co-presence and sensory proximity tests above. Likewise the step distance for the storage of utensils between the place of retrieval and the place of work is measured as described in Chapter 4 - Research Methodology. Hence, if an object is kept in the same location where it is used, then the step distance will be zero. This analysis will also show how much space is traversed for retrieval of objects, and the strength of the boundary of the cooking space to accommodate all culinary-related activities and objects. The following summary table shows the results:

House No	Mortar etc	Utensils	Electrical Appliances	Fridge	Av.Step Distance
Range	0 – 3	0 – 3	1 – 5	1 – 5	0.5 - 3.25
Mean distance	**0.8**	**1.4**	**1.7**	**1.8**	**1.271**

Table 5.24: Step distance for storage of utensils (Detailed table is in Appendix Six)

The table shows an increase in step distance from the cooking space from the mortar and grinding stone to the utensils, electrical appliances and the refrigerator. The overall mean step distance of all utensils from the cooking space is 1.271, which is less than two steps, and closer to the cooking space in comparison to activity, which is 1.389 on average. The mortar and grinding stone has the lowest step distance as they are stored and used in the orowa. Utensils tend to be kept in the iyara and retrieved for use in the orowa, and returned to the iyara after use. Households sometimes went out of the house to commercial mills to grind the ingredients for making stews, soups etc. Likewise, the fridge is situated in the rooms, and never in the kitchen as in Houses 8, 12, 13, 19, 20, 22, 24 and 25, and only once in the orowa (House 15), and it has the highest average step distance from the cooking space. The results suggest that implements would tend to strengthen the

integrity of the boundary of the cooking space for culinary use and facilities would tend to weaken it. The mean step distance between food storage and cooking space was calculated. The breakdown in ascending order is as follows:

Food	Range	Mean Step Distance From Cooking Space
Tubers	0 – 2	1.4
Grains & Cereals	0 – 3	1.6
Fruits & Vegetables	0 – 5	1.6
Ingredients	0 – 5	1.6
Perishables	0 – 5	1.7
Cooked foods	0 – 4	1.7
Canned foods	1 – 2.5	1.8
TOTAL	**0 - 5**	**1.612**

Table 5.25: Step distance for storage of food. (Detailed table is in Appendix Six)

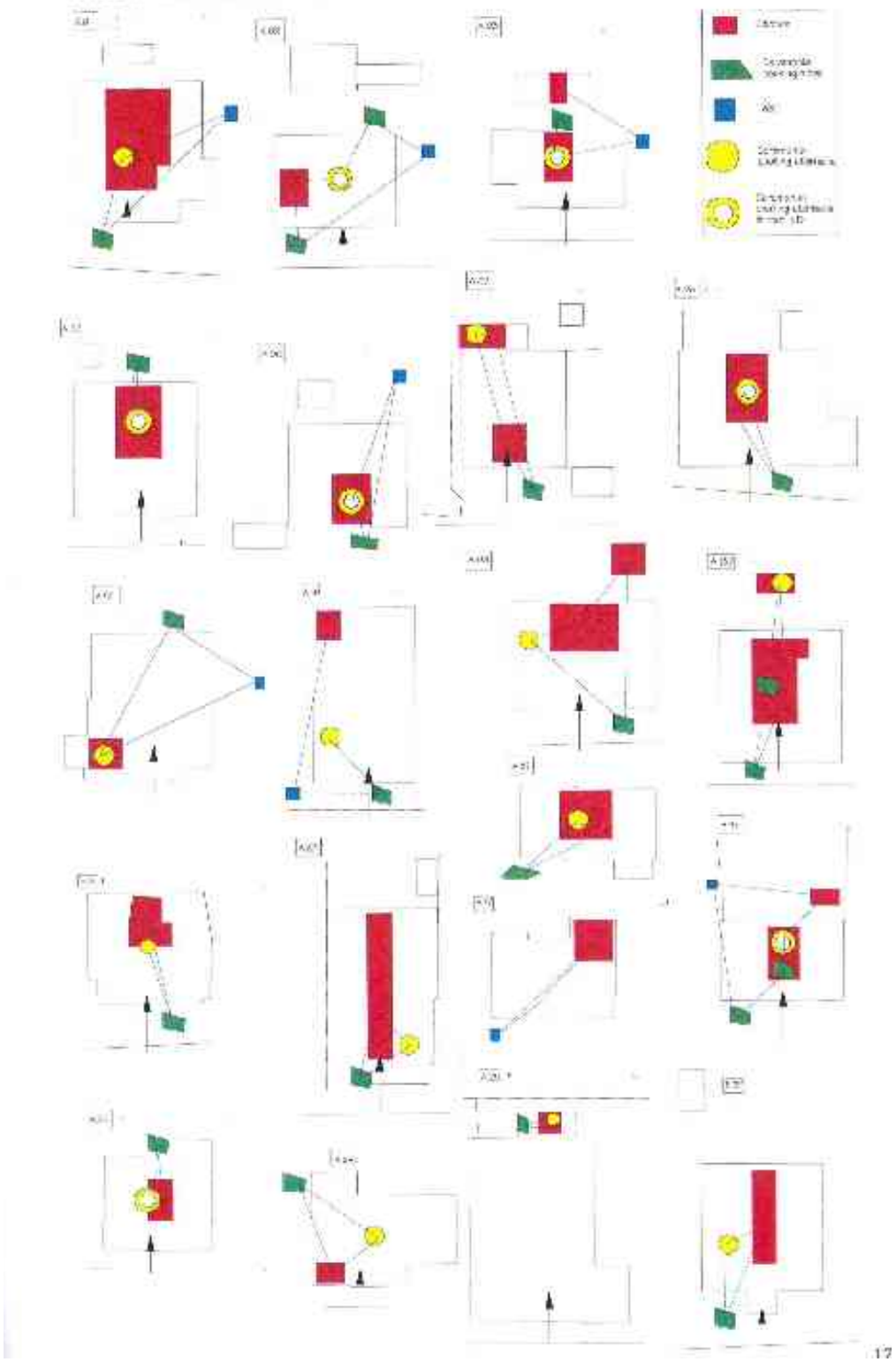
The results show that the overall mean step distance for all food was 1.612 from the cooking space, in comparison to 1.271 for utensils. With the mean step distance for all foods ranging from 1.4 to 1.8, it means that overall, all foods are stored at more than one step from the cooking space. Then, as only the mortar and grinding stone measured 0.8, i.e. less than one step away, it means that in orowa houses, most food and utensils tend not to be within the same spatial boundary as the place in which it is to be used.

Therefore, it can be derived that with respect to boundaries, the distance from cooking is as follows: Utensils (1.217) < Activity (1.389) < Food (1.612); the boundary of kitchen impinges up to two steps away from the cooking space. With respect to multi-functionality of spaces, it can be seen that cooking is a dominant activity in the orowa, a highly integrated space, though can be spatially compatible with eating and dishwashing, can tend to push eating, a higher status activity to the *iyara*, a more segregated space; and dishwashing, a lower status activity to outdoor space, a lower status space, as the main house is higher than the outdoor space and outhouses. With regards to storage of food and utensils, the higher status electronic appliances and the canned foods are co-spatial with eating in the segregated room, and the lower status mortar and grinding stone are co-spatial with cooking, in the integrated orowa.

Ceremonial Cooking

Fig 5.16 below shows the layout of the site for ceremonial cooking, in terms of circulation between the well, the storage space and the cooking hearth.

Fig 5.16 – Ceremonial cooking



Twelve households used the frontyard for ceremonial cooking (Houses 1,2, 6, 7, 8, 9, 13, 15, 18, 19, 20, 37), eight households used the backyard (Houses 2, 3, 5, 12, 22, 23, 24, 25), and two households used the orowa (Houses 15 & 20). The blue tracker indicates the circulation between the basic nodes, and it shows that the cooking place does not necessarily lie in the same spatial boundary as the source of water and the storage space. Also, as outside spaces are used, the results show a few more households used the frontyard rather than the backyard, and the reasons from respondents for the choice of frontyard was that there was more space around the hearth for helpers to join in, and the backyard was also too restricted for the number of cooks, whereas, respondents choice for the backyard was actually an argument against the frontyard as too open to the public particularly for houses along the roadside, which meant that cooking in dusty conditions from that generated by passing motorists, plus the fact that the frontyard had to be presentable at all times.

Role allocation and patterns of domestic hegemony

Amos Rapoport (1990 p9) proposed the following methodological question to address environment-behaviour interaction in social settings: *"Who does what, where, when, including or excluding whom (and why)."* In the field study, respondents were asked to state all who participated in culinary-related activities, and why? They were then asked to state how roles should ideally be allocated on the grounds of gender and age.

The study found that in all households, the mothers, daughters, and in a few instances, the sons were engaged in culinary-related activities, but the fathers and adult males were exempt. Respondents were asked to categorise individuals in the order in which they were responsible for preparing the main meals.

Table 5.26 – Role allocation for cooking - below summarises the findings:

Group	Cooks in order of responsibility	House No	Total
1	Mother only	25	**1 (5%)**
2	Mother and Daughter/s	1, 2, 3, 5, 6, 7, 17, 19, 22, 23, 37	**11 (55%)**
3	Daughters and Mother	24	**1 (5%)**
4	Daughters only	13	**1 (5%)**
5	Mother and Daughter and Son	8, 12, 18, 20	**4 (20%)**
6	Daughter/s and Son/s	9, 15	**2 (10%)**
			20

In the first four groups consisting of fourteen households, females were solely responsible for cooking, and the last two groups consisting of six households had assistance from sons. In Group 5, the sons' task was mainly dishwashing, particularly if there were no daughters available at the time to allocate the work to. Fifteen respondents stated that cooking was essentially a female task, whilst three said it was a joint male and female responsibility. The "male" in this sense referred to sons, and not fathers, as respondents argued that sons had to learn to cook in order to be prepared for independence in their future lives as single adults, as after marriage, cooking would become their wives' responsibilities.

Another pattern that could be seen from the table is the allocation according to seniority. In three households (House 9, 13, 15), cooking was done by the children, both male and female, in one household (House 24), the daughters were the main cooks and the mother was named as the third person, and her role was that of overseer. Half of the households believed that culinary activity had to be delegated to children as soon as they were considered mature enough to handle the responsibility, and as such, the mother's role was to teach and supervise towards a time when she can leave it entirely to the children. The others felt it was a joint responsibility, in which the mothers may choose to prepare the stews, which is considered a skilled task, and leave the routine cooking like frying, boiling yams, rice, pounded yam etc, to the children, particularly when the fathers claim that their wives were the only ones competent to prepare their meals to their liking, which meant they could not delegate certain responsibilities.

SUMMARY

In this chapter, it has been seen how the proximity of adjacent activities can influence how space is used, which suggests the status of a space can permit or delimit how it is used. Furthermore, the convergence of status activities, objects and food in a space would suggest that variables can acquire status by association with other variables of comparable status. The intervening factor was a need to restrict accessibility to these objects and food, whereby a secure space provided the solidarity required. The analysis also shows that activities like eating are found to move from the segregated, type A iyara into boundaries for collective activities such as the orowa and front yard, but never in a clear service space as in the backyard. In this sense, the fluidity, and in this sense, social mobility of eating is

restricted from spaces for service activity. With respect to roles, culinary related activities embodied the principles of successive delegation along the lines of seniority by age and sex. Orowa households almost always have younger females resident to delegate work to, and the presence of extended family had the tendency for the traditional order to be reinforced, particularly where half of the respondents indicated a preference for shared male/female and parent/child roles, yet had mainly the female members participate.

In the next chapter, the rooming house will be examined with these same questions to see what trends persist in a similar but different environment.

VI *The rooming house & co-residency*

The purpose of this chapter is to present the analysis on the rooming housetype. Rooming households tend to be on a higher socio-economic stratum than the orowa households particularly in terms of their occupation. Like the orowa house, the rooming house is a residence shared by multiple households, but unlike the orowa house it is usually inhabited by non-kin. It is a co-residence. In the orowa house, the power structure which is determined by biological relationships, but in the rooming house it is based is an economic relationship, that between the landlord and the tenant. The analysis showed that the increased emphasis on through-circulation in the hall resulted in higher status activities, object and food storage gravitating towards the private segregated and terminal spaces like the room. Households seem free to negotiate roles across the gender and parent/child barrier as they have a less varied demographic pool to call upon.

INTRODUCTION

In this chapter, a second type of domestic environment is presented and a similar format to Chapter Five is employed where the analysis on the rooming house is presented in comparison to the orowa house. Similar to the orowa house, the rooming house has a central albeit narrower circulation and service concourse called the hall, which is flanked by rooms in place of the *iyara* on opposite sides of the hall. It has an entrance and exit on the other opposite sides leading to a frontyard and service backyard respectively. The rooming house is a two-storey house with a staircase leading to the upper floor with a similar layout. Tenants occupy rooms exclusively but share the use of the hall, backyard, toilets, bathrooms and kitchens with other resident households and usually a resident landlord.

HOUSEFORM AND SITE

Thirty rooming houses consisting of six in Enuwa and twenty-four in Akarabata/Ojoyin areas were sampled (See Fig 6.1 – Floor plans of rooming houses). As in the orowa houses, rooming houses in Enuwa area tend to be part of an *agbo-ile* (family compound), but rooming houses in Akarabata are connected to the houses and structures within the fenced or defined curtilage of the house and grounds. Where there are fenced boundaries, they tend to be in backyard, for the service facilities and rarely to the frontyard.

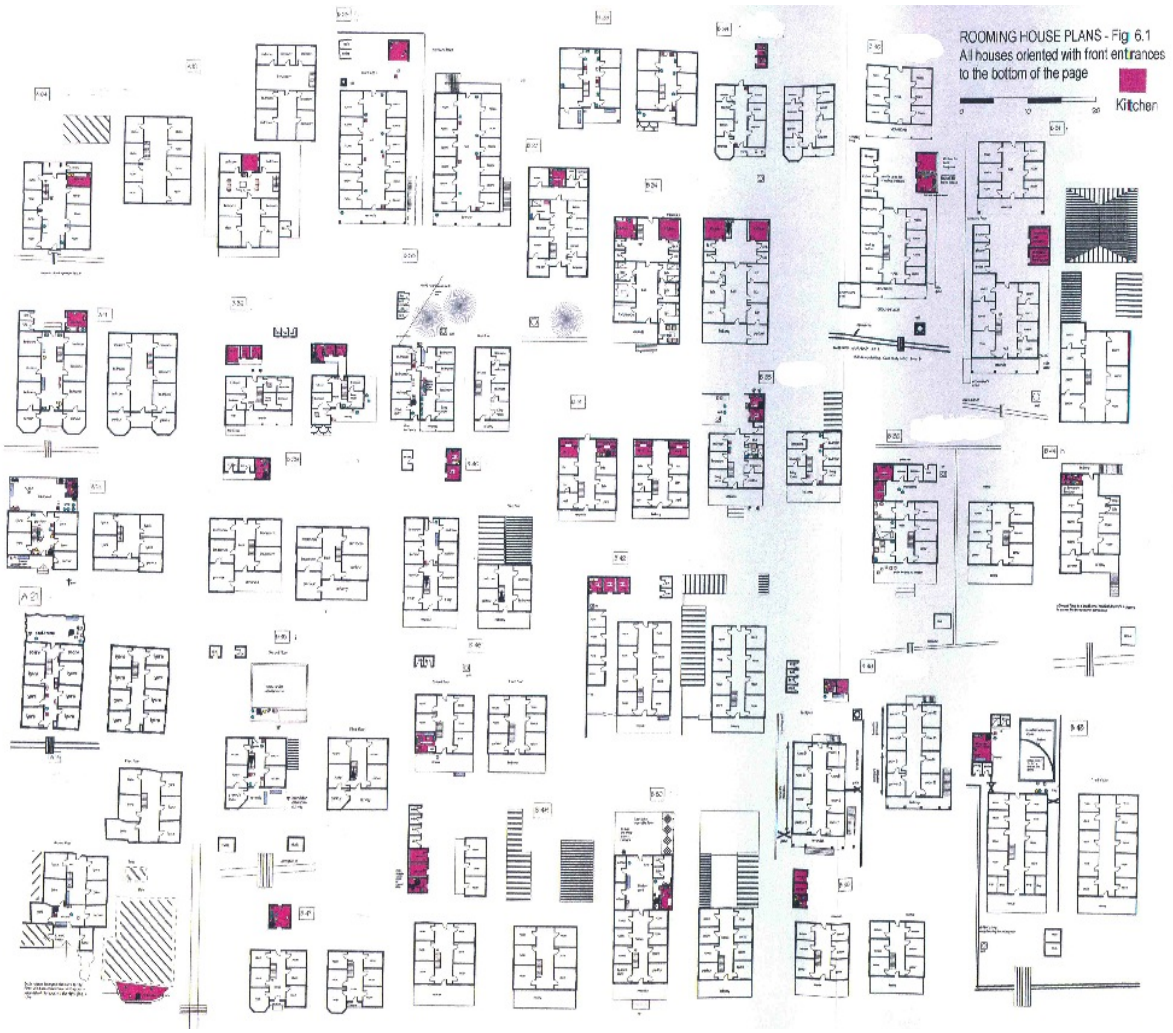


Fig 6.1: Site and Floor Plans of the Rooming House

Table 6.1: The comparative distribution of household structure for each housetype

Household Type	Orowa Houses	Rooming Houses	Total
Nuclear family	4	23	27
Compound Extended family	13	5	18
Polygynous families	3	2	5
Total	**20**	**30**	**50**

There were more nuclear family households resident in rooming houses partly because most rooming houses were developed as commercial ventures, aimed at young low-income tenant households who were living away from their family homes to work in a different neighbourhood or town. Extended and polygynous family households tended to be owner-occupiers in both orowa and rooming houses, and it stands to reason that it would be uneconomical to find larger households renting rooms in another person's property.

There are two variations of the rooming house (see Fig 6.1 below), consisting of twenty-seven houses with a single-flight staircase in the hallway, and three houses: House 26, 44 & 49, with two external stairs leading to the upper storey balconies and rooms.

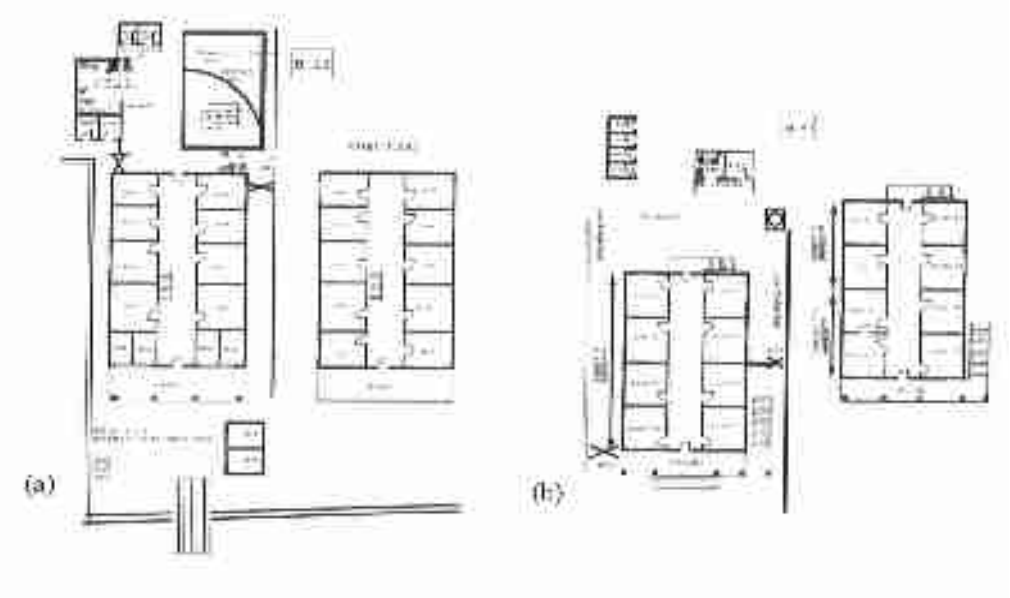


Fig 6.2: Two variations of the rooming house layout (a) – internal stairs; (b) external stairs

From Fig 6.2, House (a) has one front door to the house at street level, whilst House (b) has a front door on each floor. The latter also allows for clear separation between the storeys such that in House 44, each floor functioned as two self-contained flats.

On site, the house in front accommodates the rooms and living quarters, and the detached or semi-detached structures in the backyard and sideyard accommodate the service and convenience facilities. The rooming house in Fig 6.2(a) has a central hall with the front entrance door from the street and exit to the backyard on opposite ends, flanked by rooms on the longitudinal sides, with an internal staircase in the hall leading to the upper floor with a similar layout. It also has four shops in front, two kiosks in the frontyard, and an additional house in the backyard is under construction. Gates between the house and the boundary fence line separate the frontyard from the backyard. The shared kitchen, bathroom and toilets are in detached outhouses in the backyard. The rooming house in Fig 6.2(b) has a section of the upper floor allocated as the resident landlord's premises, and the rear section of the upper floor and the whole of the ground floor are occupied by tenants. (See Fig 6.3 a & b).

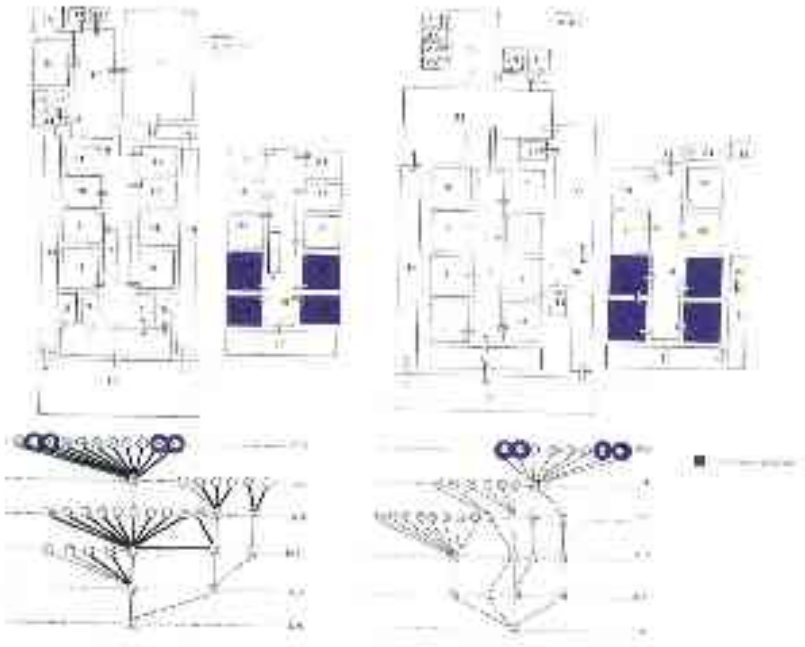


Fig 6.3 (a &b): Resident landlord's premises in rooming houses in blue

Although the landlords in both houses (see Fig 6.3) occupy similar positions in a geometric sense, i.e. upper floor, sixth depth level and with front rooms facing the street, the landlord in House (a) is able to monitor occupants as they passed in front of his tenants' rooms on the way to their quarters, whereas tenants in House (b) have more independence as neither access nor hall are shared. In terms of access zoning the houses tend to have a pattern similar to the orowa houses as in Fig 6.4 (a & b) below where private exclusive spaces flank public collective spaces:

Fig 6.4 (a & b) – Accessibility zones to two rooming houses

The ground and first floor hall are shared by residents on each level, and the shared service facilities tend to be in the backyard as represented in the schematic diagram in Fig 6.5 below:

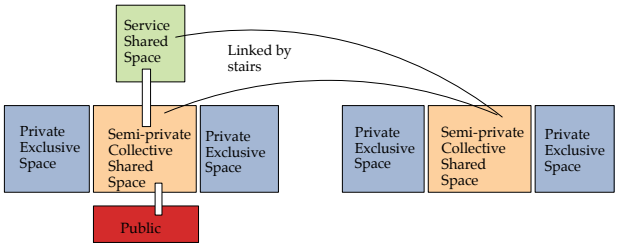


Fig 6.5: Schematic diagram of houses

In houses where the vertical circulation is in through the lower level hall, the households that lived on the ground floor stated that they liked their vantage point because it made them about all those who entered the house in terms of their co-residents and their visitors, but at the same time disliked their location because the through-circulation past their rooms could enable their co-residents to be aware of their private affairs.

Other variants to the internal stairs rooming house are seen in Fig 6.6 (a,b,c) below:

House 6.6(a) has five purposely-configured room & parlour layouts with allocated semi-detached kitchens on the ground and first floor, and three bathrooms in the backyard, and it is an attempt toward autonomy for tenant households. House 6.6 (b) has a front hallway for circulation, a second hallway as living room, and a rear porch for cooking. The stairs is situated to one side of the second hall/living room. House 6.6(c) also has a front hallway

for circulation, and a rear collective space for service facilities, with integral kitchen, bathroom and toilet. The stairs are located at the end of the house. Five houses (House 30/31; 42, 43, 45 and 48) also have residential quarters in the backyard, and this was usually an extension for an adult member of the landlord's family. All houses are fully detached (i.e. no party walls), and in several instances, houses were built as close as possible to the boundaries, leaving space for only for pedestrian access from the front to the backyard. Houses 30/31, 36, 43, 44 and 45 have sheds and kiosks in the frontyard for self-employed traders, mechanics, electricians, tailors etc. in the setback between the front entrance to the house and the roadside gutter.

Shared, Exclusive and Service Spaces

As in the analyses on orowa houses, all convex spaces were distributed into shared, exclusive and service spaces based on their space labels and the dominant use implied by the space label. The percentage ratio of this distribution is compared in the two charts for rooming and orowa houses below:

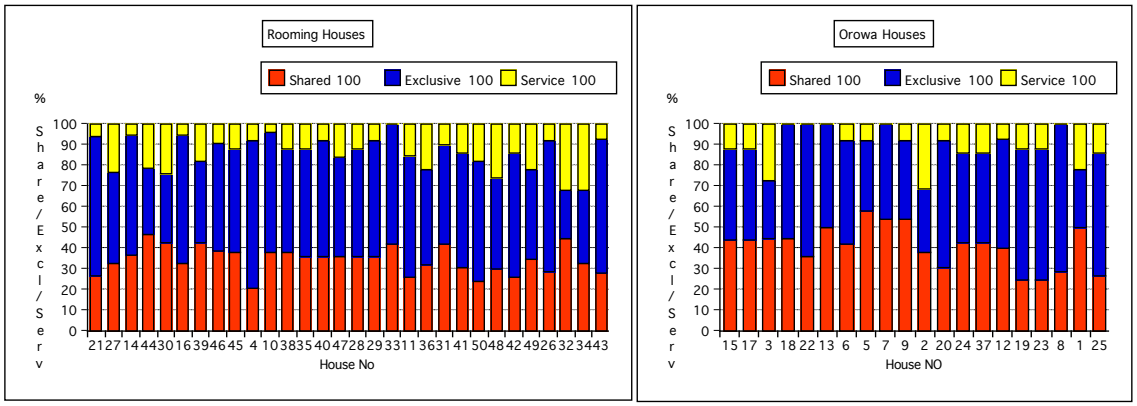


Fig 6.7: Comparative charts showing split of shared, exclusive and service spaces

The rooming house chart (on the left) shows that all but one (House 33) have designated service spaces, whereas, the orowa house chart show there are no service spaces in five out of the twenty houses. The study found that in twenty-seven out of thirty rooming houses, the percentage/number of exclusively occupied convex spaces was greater than the percentage number of shared and service spaces (i.e. except in Houses 32, 39 & 44). However, in orowa houses, there are an equal number of shared and exclusive spaces in five houses, but a greater number of shared spaces than exclusive spaces in six houses.

The results show that orowa houses tend to be more accessible to non-resident persons than rooming houses.

The study compared the percentage of spaces designated for service (including cooking) activities to the percentage of spaces with a footprint for culinary related activity, which means all spaces used for food preparation, dishwashing, utensils storage and food storage, and this includes the kitchen, hall, backyard, frontyard, room, store and so on. As in Chapter 5 – Orowa houses, where more spaces are used for culinary activity than for service spaces, then the difference is in the negative, and the chart shows the bar below the line of origin.

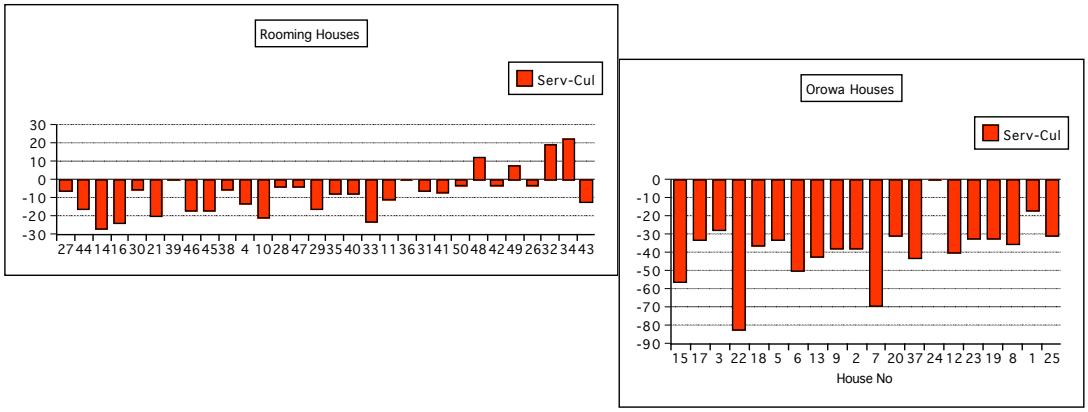


Fig 6.8: Charts comparing service spaces to culinary-mapped spaces in rooming & orowa houses

Fig 6.8 shows that four rooming houses have more spaces designated for service-related use than the total number of culinary-mapped spaces in the house, whereas, all orowa houses have more culinary-mapped spaces than strictly service spaces. Residents in rooming houses can be expected to regard collective spaces differently from orowa house residents, as there are fewer alternative spaces available to each household, and because their co-residents are non-kin, landlords can set rules as to how communal spaces may be used, whereas, residents in orowa houses are joint owner-occupiers for whom the use of communal space use may be subject to negotiation, that may not necessarily involve the head of the family. Also rooming house tenants tend to have fewer alternative spaces to store things than orowa households, as very few items can be owned in common. Furthermore, as rooming houses tend to be commercially driven, the provision of services and convenience facilities specifically for each property tends to improve their desirability to prospective tenants.

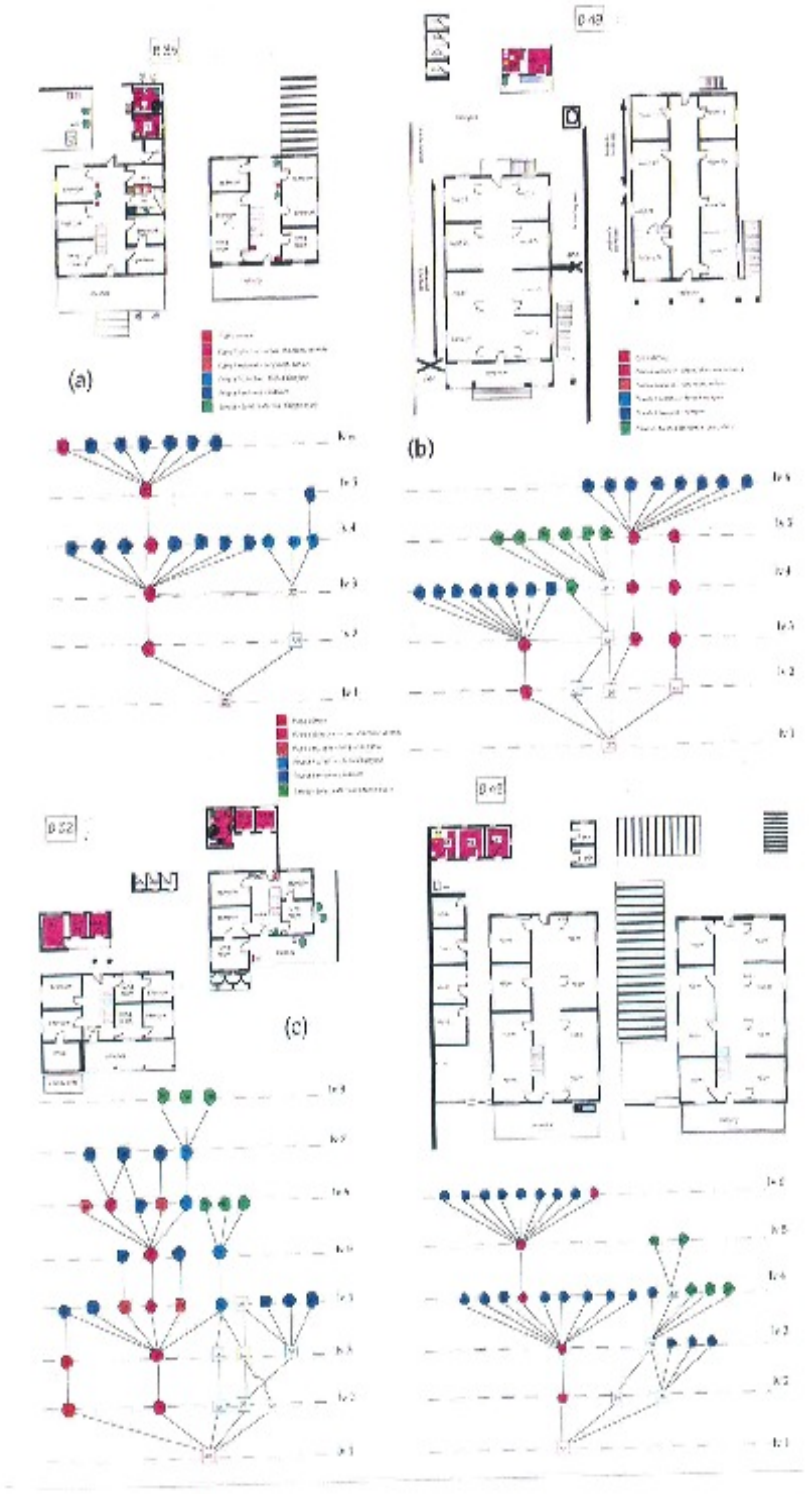
SPACE SYNTAX ANALYSIS ON ROOMING HOUSES

Table 6.2 below shows the summary of some results of syntactic analysis on the floor plans. The houses are arranged in ascending order of the number of convex spaces.

House No	Sample Area	No-Convex spaces	Mean Integration	Total Depth	Mean Step depth	Base Difference Factor	Transition: Function Ratio
21	Enuwa	15	1.160	4	2.900	.582	.375
27	Akarabata	18	1.450	5	3.240	.656	.500
44	Akarabata	19	1.100	5	4.167	.769	.727
14	Enuwa	19	.960	6	3.720	.771	.700
16	Enuwa	21	.940	6	3.950	.788	.600
30	Akarabata	21	1.220	5	3.650	.690	.615
46	Akarabata	23	1.150	5	3.910	.565	.643
39	Akarabata	23	2.015	5	3.820	.599	.643
10	Enuwa	24	.920	7	4.650	.821	.714
38	Akarabata	24	1.160	5	3.910	.562	.600
45	Akarabata	24	.980	6	3.910	.759	.846
4	Enuwa	24	1.230	5	3.700	.611	.411
28	Akarabata	25	1.180	5	3.580	.481	.563
29	Akarabata	25	1.200	5	3.750	.588	.563
47	Akarabata	25	1.170	5	3.790	.643	.667
35	Akarabata	25	1.170	5	3.750	.701	.471
40	Akarabata	25	1.050	5	3.880	.593	.667
33	Akarabata	26	1.260	5	2.920	.649	.714
11	Enuwa	27	1.110	6	3.920	.646	.421
36	Akarabata	28	.920	5	4.330	.774	.647
41	Akarabata	29	1.250	6	3.930	.702	.450
31	Akarabata	29	1.050	6	4.040	.721	.450
50	Akarabata	33	1.050	7	4.125	.810	.571
48	Akarabata	34	.990	5	4.390	.531	.545
42	Akarabata	35	1.200	5	3.970	.556	.400
49	Akarabata	37	1.550	5	4.170	.514	.682
26	Akarabata	38	.940	5	3.730	.368	.423
43	Akarabata	40	1.120	5	3.970	.669	.480
34	Akarabata	40	.890	10	6.100	.742	.600
32	Akarabata	40	.850	7	4.460	.681	.818
Mean		**27.2**	**1.141**	**5.533**	**3.944**	**0.651**	**0.584**
By comparison, the mean syntax values for orowa houses are as follows:							
Mean		**13.55**	**1.467**	**5.250**	**2.922**	**0.684**	**0.317**

Rooming houses have on average, twice as many convex spaces as orowa houses, and the mean integration and BDF for rooming houses is lower than for orowa houses, meaning that orowa houses are slightly more homogenised. Orowa houses are also shallower overall and have less transition spaces than rooming houses.

Fig 6.9 below shows typical j-graphs and floor plans for typical rooming houses:
(kitchens are highlighted)



The number of convex spaces per house ranged from fifteen to forty, the mode was twenty-five and the mean being around twenty-seven, giving ten houses greater than the mean. The total depth ranged from four in House 21 to ten in House 34, with the mode as five in nineteen houses. The mean step depth ranged from 2.9 to 6.1 (also in Houses 21 and 34 respectively). In calculating the ratio of function to transition spaces, the actual number of convex spaces a respondent household had access to, both private exclusive and public shared and communal, was used. The transition spaces to function spaces ratio ranged from 0.375 in House 21 to 0.846 in House 43, and ten houses have ratios less than or equal to 0.5, and twenty houses score greater than 0.5. This means that two-third of the rooming houses have more than half of the spaces designated for circulation, in comparison to orowa houses where only one house has a T:F ratio greater than 0.5.

The Base Difference Factor results show a range from 0.368 to 0.821, however, only two houses, No 26 & 28 are lower than 0.5 (0.368 and 0.481 respectively) and in all, three houses ranks in the lower third percentile, fourteen houses score in the middle percentile and thirteen score in the top third percentile, which means the majority of rooming houses are relatively homogenised in layout.

These comparative statistics are presented in the charts below:

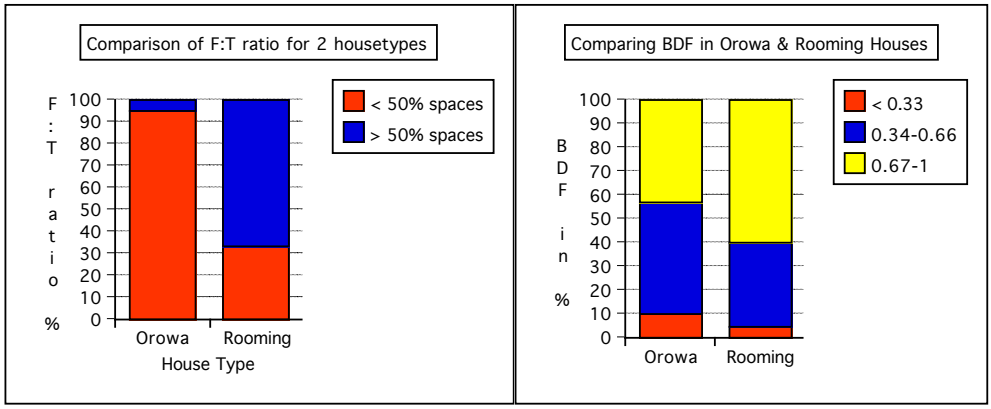


Fig 6.10: Comparison of F:T ratio and BDF for Orowa and Rooming houses

Fig 6.10 above shows that the percentage of convex spaces used for mainly circulation increased from orowa to rooming houses, which is partly due to the greater number of convex spaces in rooming houses, which had to be transition spaces in order to reach

convex spaces deep in the system, but may also be due to fact that because rooming houses are shared with strangers, more of the communal spaces like the hall become more used for circulation than for activity. Likewise, the BDF chart shows that the proportion of houses with a more homogenised layout (closer to 1) increased from orowa houses to rooming houses.

Integration and Segregation

The culinary mapped spaces are the hall, frontyard, backyard, sideyard, room, the veranda and the kitchen. The colour-coded distribution of integration for each house is given in Table 6.2 below:

ROOMING HOUSE - INTEGRATION						
HOUSE NO	Hall	Backyard	Room	Outside	F. Veranda	Kitchen
4	2.158	0.863	1.091	0.835	0.835	0.863
10	1.035	0.809	0.859	0.616	0.835	1.125
11	1.894	0.891	1.083	0.866		0.891
14	1.594	1.104	1.113	0.721	1.104	0.752
16	1.445	0.97	0.839	0.707	0.993	0.535
21	1.991	0.833	1.02	1.125		
26	1.203	1.315	0.851	1.04	1.072	0.905
27	2.441	1.467	1.403	1.467		1.076
28	1.983	1.579	1.09	0.891	1.348	
29	2.068	1.493	0.975	0.837	1.285	0.921
30	2.454	1.668	1.197	0.787	1.227	0.948
31	1.668	1.223	1.094	0.82	1.202	0.83
32	1.348	0.961	0.847	0.804	1.079	0.622
33	1.975	2.099	1.072	1.153	1.336	
34	1.091	0.798	0.776	0.569	0.906	0.926
35	1.983	1.579	1.086	0.837	1.285	0.953
36	1.405	1.223	0.866	0.734	1.031	0.825
38	1.972	1.569	1.056	0.822	1.263	0.941
39	1.612	1.465	0.916	0.78	1.179	0.701
40	1.657	1.285	0.972	0.801	1.201	0.837
41	2.17	1.341	1.219	1.025	1.7	1.217
42	1.97	1.629	1.1	0.919		1.175
43	1.841	1.308	1.105	0.977	1.453	0.906
44	2.524	0.62	1.156	0.62		0.93
45	1.535	1.085	0.769	0.773	1.151	0.908
46	1.965	1.465	1.033	0.82	1.273	
47	1.91	1.256	1.046	0.825	1.01	1.005
48	1.418	1.709	0.9	0.794	1.111	1.095
49	1.102	1.553	0.795	0.934	0.961	0.864
50	1.69	1.634	1.026	0.85	1.231	1.205

Seven patterns of the rank order of integration for the thirty rooming houses using spaces common to all houses, i.e. the hall, backyard, room and outside were identified as follows:

Group	Rank order of integration	Mnemonic	House Nos	Total
1	Hall > Backyard > Room > Outside	HBRO	4, 16, 27, 28, 29, 30, 31, 32, 34, 35, 36, 38, 39, 40, 41, 42, 43, 44, 46, 50	20
2	Hall > Backyard > Outside > Room	HBOR	45	1
3	Hall > Outside > Room > Backyard	HORB	21	1
4	Hall > Room > Backyard > Outside	HRBO	11, 14, 47	3
5	Backyard > Hall > Room > Outside	BHRO	48	1
6	Backyard > Hall > Outside > Room	BHOR	26, 33, 49	3
7	Parlour > Hallway > Room > Backyard > Outside	PHRBO	10	1

Table 6.3: Rank order of integration for rooming houses

In comparison to orowa houses where there were five patterns of the rank order of integration, there are seven patterns in rooming house, and three of them are similar to both orowa and rooming houses (*Table 6.4 below shows the comparison*).

The dominant order has the hall as the most integrated space as in Groups 1, 2, 3 and 4, representing twenty-five (25) houses. House 10 in Group 7 (PHRBO) is a variant of Group 4 (HRBO), where the activities of the hall (H) are now distributed over three spaces: (PH), i.e. a parlour for sitting, a hallway for circulation and a kitchen for food preparation. Groups 1, 2 and 4 have the inhabitant spaces (hall, room and backyard) ranked higher than outside, and are therefore introverted. Group 3 has the hall and the outside space rank higher than the backyard and it is the only house where there is front/back; living/service divide, and is therefore extroverted. Three orowa houses in Chapter Five also have a similar distribution.

A third pattern of rank order is found, where the backyard is the most integrated space, and is higher than the hall, as in Groups 5 and 6. Incidentally, houses 26 and 49 in Group 6 are the two with external staircases, where both floor levels are accessed independently of each other, and the backyard becomes the main space shared by all residents on the two floors. House 33 has three halls, two on the ground floor separated by a wall, and one on the upper floor; and House 48 has several outhouses for kitchens, bathrooms, and storerooms in the backyard making it more articulated than the other houses (See Fig 6.11 below).

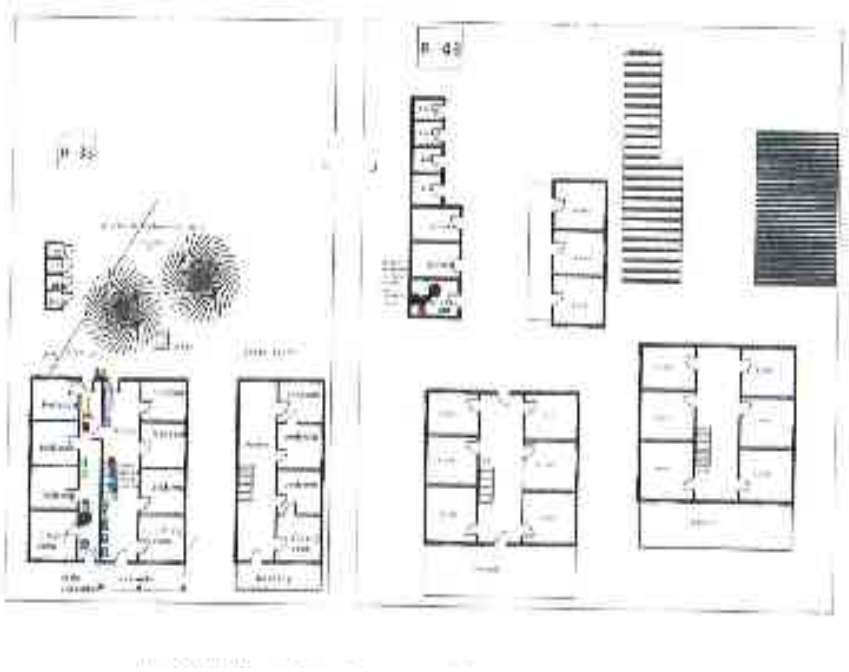


Fig 6.11: Rooming houses with dominant backyard

Therefore the two main genotypes are the living space (hall) dominant genotype, made up of two sub-types the introvert and extrovert houses; and the service space (backyard) dominant genotype.

Table 6.4 Comparison of the rank order distribution between orowa and rooming houses:

Group	Mnemonic	Orowa (20no)	Rooming (30no)	Total (50no)
1	OBRO / HBRO	14	20	34
2	HBOR		1	1
3	OORB/ HORB	1	1	2
4	ORBO/ HRBO	2	3	5
5	OOBR	2		2
6	BHRO		1	1
7	BHOR		3	3
8	CRO	1		1
9	PHRBO		1	1

Groups 1, 3 & 4 are common to both housetypes, with group 1 accounting for 68% of the sample, and group 4 following with just 10%. The rank order with the backyard as most integrated is only found in rooming houses. Groups 1 & 4 rank the hall/*orowa*, room/*iyara* and backyard (i.e. inhabitant spaces) higher than outside (non-inhabitant spaces), and they collectively constitute thirty-nine out of fifty (or 78%) of orowa and rooming houses.

The mean integration value in rooming houses range from 0.850 to 2.015, which shows a diversity in the layout of rooming houses, from shallow ringy structures to deep tree-like structures. In orowa houses, the mean integration ranged from 0.850 to 1.930. The lower and upper hall and the internal stairs are the most integrated spaces in the house, and the rooms, outhouses and external spaces tend to rank in the relatively segregated to segregated. As in the orowa house, the number of segregated spaces are much more than the number of integrated spaces in the house as seen in the following charts for the percentage ratio of integrated and segregated spaces in rooming and orowa houses:

Rooming houses	Range of Integrated convex spaces: I	Range of segregated convex spaces: S	I: S ratio
30 houses	1 – 7	16 – 37	0.06 – 0.26
		Mean I: S ratio	**0.140**

Table 6.5: Ratio of integrated to segregated convex spaces

The mean ratio of integrated to segregated spaces for rooming houses is 0.140, which is slightly higher than for orowa houses at 0.137. This means that on average, less than 15% of all convex spaces are integrated, and as such, implies that the integrated spaces have a high degree of control on the accessibility in the house. Individually, the percentage ratio of integrated spaces in rooming houses range from 5.56% in House 27 to 20.8% in House 10, and in orowa houses from 6.25% in House 23 to 18.2% in House 18, which means in the vast majority of houses, approximately less than $1/5^{th}$ of spaces are integrated. The results also show an increase in the percentage ratio of integrated convex spaces from orowa to rooming houses as summarised in the table below:

No of integrated spaces (%)	Orowa House	Rooming House	**Total**
> 10%	7	9	**16**
10 – 20%	13	20	**33**
20 – 30 %		1	**1**
30 – 40 %			
Total	**20**	**30**	**50**

Table 6.6: Comparing the percentage number of integrated spaces in orowa and rooming houses

The comparative rank order for the whole sample for the hall, backyard, room and outside is given in Table 6.9. As in Chapter Five – Orowa houses, the first ranked space is

multiplied by one, second by two, etc and the lowest score has the highest integration as a whole.

Rank Order position	**Hall**		**Backyard**		**Room**		**Outside**	
	No of houses	Multiplied	No of houses	Multiplied	No of houses	Multiplied	No of houses	Multiplied
1st rank x 1	26	26	4	4				
2nd rank x 2	4	8	21	42	4	8	2	4
3rd rank x 3			3	9	22	66	6	18
4th rank x4			2	8	4	16	22	88
Total	30	**34**	30	**63**	30	**90**	30	**110**
Mean		**1.13**		**2.1**		**3.0**		**3.6**

Table 6.7: Comparative integration position of culinary mapped spaces

The comparative rank order mean for the rooming and orowa houses is as follows:
Rooming house: Hall (1.13) < Backyard (2.1) < Room (3.0) < Outside (3.6);
Orowa house: Orowa (1.0) < Backyard (2.35) < Iyara (2.6) < Outside (3.65).

The above calculations show a similar pattern in the overall position of culinary mapped spaces in the rank order of integration after allowing for variations in individual houses.

Mean Depth

The mean step depth (k) in rooming houses ranged from 2.9 to 6.1, in comparison to 0.83 to 3.81 in orowa houses. The results show that there are more than three steps from one space to all other spaces in the system in twenty-nine out of thirty) rooming houses, whereas, there are more than three steps to all spaces in only seven out of twenty orowa houses.

Depth and Distributedness

Rooming houses are deeper than orowa houses, mainly because of the increased number of rooms around the hallway, and the presence of an upper storey with an identical layout. Houses with internal staircases are particularly deep, as access to the upper level hall and rooms will be at least a step deeper than in orowa houses. Furthermore, the backyard is more articulated in the rooming houses in Akarabata, with the services outhouses being always situated in the backyard, with access mainly through the house and ground floor hall.

Table 6.8 below shows the depth of culinary mapped spaces in rooming houses

HOUSE NO	Total Depth	Hall	Room	Kitchen	Backyard
4	5	1	4	3	4
10	7	2.5	4	3	2
11	6	2	3	3	2
14	6	2	3	4	3
16	6	2.5	3		4
21	4	1	2		3
26	5	2	3	3	2
27	5	2.5	3	4	4
28	5	2	3		2
29	5	2	3	3	2
30	5	2	3	5	4
31	6	3	5	5	4
32	7	3	6	7	2
33	5	1.5	3		2
34	10	2.5	4	5	2
35	5	2	4	3	2
36	5	2	5	5	6
38	5	2	3	3	2
39	5	2	3	4	2
40	5	3	3.5	3	2
41	6	2	3	3	2
42	5	2	3	3	2
43	5	2	4	4	3
44	5	3	4	5	6
45	6	2	4	3	2
46	5	2	3	2	2
47	5	1	3	3	3
48	5	2	4	4	2
49	5	2	4	4	2
50	7	2	3	5	3
SUM	**166**	**62.5**	**105.5**	**99**	**72**
Mean	**5.33**	**2.1**	**3.5**	**3.81**	**2.77**

In terms of depth, the order from the shallowest space label to the deepest starts with the hall, to the backyard, room and then the kitchen. The order of the step depth bears some similarities with the orowa houses in that the hall and orowa in both housetypes are shallowest, and the kitchens in both housetypes are deepest, but differs slightly in that the room is shallower than the backyard in rooming houses, but deeper than the backyard in orowa houses. The backyard is relatively shallow in the system in rooming houses because the upper storey of the house increases the total depth of internal spaces, whereas, it is possible to get to the backyard from the front yard via the side yards between the house and boundary wall within two to three steps, whereas, a room on the upper floor will have an additional two steps to three steps from the ground floor hall via the ground floor hall, the stairs and the first floor hall.

In terms of distributedness of the convex spaces, the justified graphs show a mix between bushy systems and ringy systems (see table 6.9).

Type	House Nos	Total
A & B	4, 14, 16, 18, 26, 27	6
A, B & C	29, 31, 36, 42, 43	5
A, B, C & D	10, 11, 28, 30, 32, 33, 34, 35, 38, 39, 40, 41, 44, 45, 46, 47, 48, 49, 50	19

Table 6.9: Distributedness of spaces in rooming houses

The chart shows that a significant number of houses have type C (on a ring) and D (on two or more rings) spaces. The type A spaces tend to be the rooms and service spaces like kitchens, toilets, and store rooms. Type B spaces tend to be the veranda and hall. Some houses have two adjacent rooms with an intercommunicating door being let as room and parlour, with direct access to the hall, thus forming a Type C space with the hall, and where there are several rings of this nature, the hall becomes a Type D space. Likewise, the exterior spaces in form of the backyard, frontyard and sideyards also provide rings in the j-graph layout thus forming Type D spaces.

Table 6.10 below compares the number of houses with Type A, B, C & D spaces for orowa and rooming houses:

Connection Type	Orowa house	Rooming house	Total
A & B	14	6	20
A, B & C	4	5	9
A, B, C & D	2	19	21

The results show a reversal of type A & B, and type A, B, C & D spaces from orowa to rooming houses. The orowa houses tend to be predominantly bushy in structure, whereas rooming houses tend to be predominantly ringy, though the rings tend to be between two adjacent rooms and the orowa, or a ring with the outdoor spaces. This is a reflection on the non-kin occupancy requirement of rooming houses, for which alternative routes for access allows greater flexibility for occupants to come and go as they please, and not be monitored by a family-patriarch as in an orowa house. Rooming house landlords would mainly tend to monitor the whereabouts of their tenants in matters relating to their occupancy such as rent, nuisance, use of communal facilities but the orowa household is set up for most of the daily activities to be carried out in the presence of others. In the field

study, resident in orowa houses did not state a desire for privacy as high a priority as in rooming houses. There is a sense in which seeking privacy in orowa houses may viewed with suspicion within an extended family set up but co-residents in rooming houses have the option to choose level of accessibility they want with their neighbours. If an individual in the extended family household appears to be secretive, such as keeping to their rooms and away from the orowa and shared spaces, they could be accused of conspiring to harm someone else in the family, which can implication on succession and inheritance. On the other hand, if a rooming house resident is always found in the communal areas – hall, backyard, veranda and so on, they may seen by others as inquisitive and nosy, and fellow residents may tend to avoid then.

The summary of the space syntax results for the culinary mapped spaces is as follows:
Table 6.11 Space syntax summary for rooming houses and orowa houses (in italics)

	Hall	Backyard	Room	Outside	Front veranda	Kitchen	Kitchen store
Integration	1.77	1.29	1.01	0.86	1.12	0.89	0.61
	3.266	*1.395*	*1.052*	*0.94*		*0.815*	
Depth	2.10	2.77	3.5	1	1.5	3.81	5.33
	2.1	*3.25*	*3.05*	*1*		*3.9*	*2.0*

The table shows a relatively low mean integration value of 1.77 for the central hall in comparison to the orowa at 3.266 from Table 5.9. The integration values for the other spaces are similar for both rooming and orowa houses. In the rooming houses the values range from 0.61 in the kitchen store to 1.26 in the backyard, and in the orowa houses the values range from 0.815 fro the kitchen to 1.395 for the backyard.

The hall is two steps deep on average and consists of type B, C and D spaces, and the backyard is one step deeper and consists mainly of type B spaces because they tend to lead on to outhouses at the rear of the house. The rooms are 3.5 steps away from the outside space in front and it consists of type A and a few type C spaces where there are interconnecting rooms built for rent as bedroom and parlour. The kitchens are almost all type A spaces and are one of the deepest of the culinary mapped spaces, which is consistent with the frontstage/backstage divide of the kitchen.

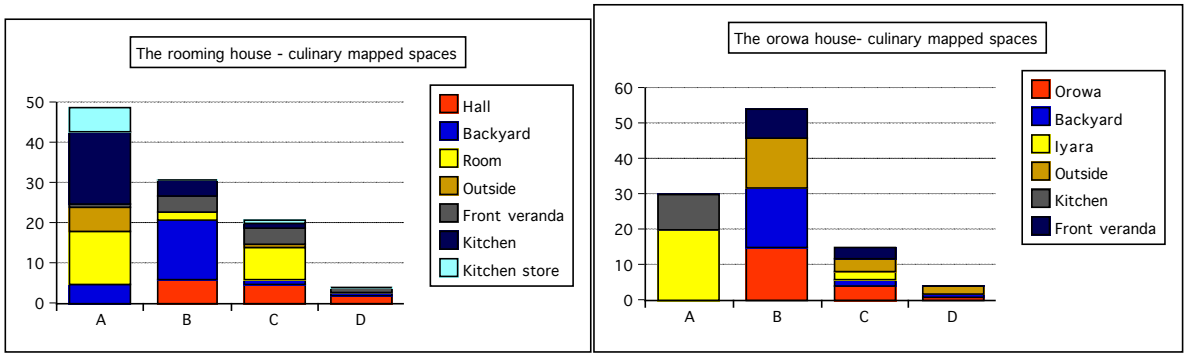


Fig 6.12 – Showing the distribution of Type A,B,C,D culinary mapped spaces in the rooming and orowa houses.

The analysis showed that there was a higher proportion of culinary-mapped spaces that are type A spaces in the rooming houses and are mainly type B spaces in orowa houses (see Fig 6.12).

ACTIVITIES AND STORAGE PATTERNS IN THE USE OF THE CULINARY-MAPPED SPACES

The culinary-mapped spaces i.e. spaces with a culinary-related footprint are the hall, room, kitchen, storeroom/utility room, frontyard, sideyard & backyard. The room is similar to the *iyara* as a living, sleeping and storage space. The following charts show the percentage of convex spaces used for culinary-related activity in relation to the gross number of convex spaces, using the net percentage of culinary spaces accessible to an individual household, the results would be as in Table 6.13 below:

Percentage range	Orowa house (20)	Rooming House (30)	**Total (50)**
10 – 20%		2	**15**
21 - 30%		6	**14**
31 - 40%		10	**7**
41 – 50 %	4	9	**7**
51 – 60 %	4	3	**3**
61 – 70 %	2		**3**
71 – 80 %	4		
81 – 90 %	4		**1**
91 – 100%	2		

Table 6.12: Comparison of percentage net culinary-mapped spaces in orowa and rooming houses

The percentage range of culinary mapped spaces in orowa houses is 41 – 100 %, and for rooming houses is 10 – 60%. In other words, orowa houses have more than 40% of its convex spaces being employed for a culinary-related use, whilst rooming houses have less than 60% of its convex spaces as culinary-mapped. This suggests that culinary related activity and storage have a reduced presence in rooming houses than in orowa houses.

The following table shows the distribution of activities, and the storage of food and utensils in the culinary-mapped spaces. The full breakdown indicating house numbers is in Appendix Four – House Activity Space Matrix: Rooming House

Rooming Houses	ACTIVITY			UTENSILS		FOOD		Total
	Eating	Cooking/ foodprep.	Dish-washing	Implements	Facilities	Raw	Trans-formed	
Orowa	5	13	3	10		6		**37**
Room	27	2		20	16	26	26	**117**
Kitchen		19	5	19	1	14	4	**62**
Frontyard	2	11	4					**17**
Sideyard/ Backyard		18	18	5		2		**43**
Utility/ Store		2	1	1		1	1	**9**
Total	**34**	**65**	**31**	**55**	**17**	**52**	**31**	**285**

Table 6.13: Matrix of space use for activity and storage in Rooming houses

The table records 285 responses for the various spaces being used for different activities and storage in the house. From the table, the private room in the rooming house (similar to the *iyara* in the orowa house) has the highest frequency of culinary-related use, and it features for almost all kinds of culinary activities and storage except for dishwashing.

One household (House 35) does foodprocessing and food preparation in their room, but not cooking, and one other household (House 31) prefers to cook on the stove in their room for privacy from "nosy neighbours". House 31 is also one of the female led households in the sample, whose occupation as a civil servant implies she is learned and considers herself of higher status to the wives of her neighbours who are traders, but her

income as a sole earner makes self-contained accommodation unaffordable. Consequently, she states that cooking in the hall would make them all "too familiar" as she would have to speak with "them", and would only cook there when preparing foods that emit fumes and strong smells.

Like the orowa house, rooming houses are constituted of two main sectors - of living spaces (hall –both ground and first floor levels, veranda, room; and service spaces (backyard, frontyard, kitchen and convenience facilities). Residents occupy rooms exclusively, but share the hall, veranda, backyard, frontyard and convenience or service facilities with other residents. They may cook in the hallway or in a designated kitchen, which could be integral with the main house, or in a detached or semi-detached structure. Twenty-four houses have a designated kitchen, and from table 6.15 below which shows in detail all spaces used for cooking, and at least eight of the households that have access to a designated kitchen also use the hall, because of the inconvenience of waiting in line to use the kitchen, and security over their property. Furthermore, the hall is directly visible from their rooms, but the designated kitchen in the backyard is not. House numbers highlighted in red use more than one space for daily cooking.

Cooking space	House Nos	Total
Hall	4, 11, 14, 16, 21, 26, 28, 29, 31, 33, 35, 40, 45	13 (8no duplicated)
Indoor kitchen	4, 27, 34, 41, 44, 46	6 (1no duplicated)
Semi-detached kitchen	10, 11, 50	3 (1no duplicated)
Detached kitchen	14, 26, 29, 30, 31, 32, 35, 36, 38, 39, 40, 43, 47, 48, 49	15 (6no duplicated)

Table 6.14: Distribution of spaces used for cooking

There is a sense in which the rooming house hallway does not function quite like the orowa as a main living space, though people would prepare, cook and store their foods there, they tend retreat to their rooms for most of their other domestic and living activities. They may sometimes sit out on the verandas in the warm evenings, but not so much in the hallway. As such, it has a reduced impact as a focal living space, even though the configuration shows it to be the most integrated space.

The table 6.15 below shows a matrix of cooking implements and storage spaces

The details of the house numbers are in Appendix Five – under House Activity Space Matrix: Rooming house

	IMPLEMENTS				FACILITIES			
	Cooking utensils	Mortar/ grinding stone	Electrical appliance	Ceremonial cooking utensils	Stoves/ hearth	Fridge/ freezer	Wells/ Taps	**Total**
Hall	6	8			13			**27**
Room / Parlour	15	6	9	2		16		**48**
Store / Pantry / Loft		1		8				**9**
Indoor kitchen / Dining	3	4	1	3	7			**18**
Backyard / Courtyard	1	5		5	4		10	**25**
Outhouse kitchen	9	14		6	17			**46**
Frontyard		1			3		6	**10**
	34	39	10	24	44	16	16	**183**

Items are found or stored in the following order:
Room/Outhouse kitchen/Hall/Backyard/Indoor kitchen/Frontyard/Store,pantry,loft.

This order is different from the orowa house, which is as follows:
Orowa/Iyara/Store,pantry,loft & Backyard/ Outhouse kitchen/Indoor kitchen/Frontyard

From the two storage patterns, a number of observations can be made. The room/iyara and the hall/orowa have the highest frequency for storage, even higher than the kitchen and backyard. With regards to the low frequency of storage in storeroom, rooming houses have a much lower number of designated spaces because they do not generate as much rental income as habitable spaces, and not many households can afford to rent a space that can only be used for storage in addition to their accommodation. Orowa houses tend not to have many storerooms, but instead use the roof loft. Generally, items found in the kitchen, backyard, frontyard and hall would tend to be used where they are situated, whereas items found in the room and storeroom would tend to be retrieved for use in the cooking space and returned to its storage space after use.

Fourteen houses had at least a well and or tap in their frontyard or backyard. House 14 has two wells in both yards, House 43 has a well in the frontyard and a mains tap in the back

and House 50 has one mains tap in the backyard. All the other houses have only one well. The gutters that run alongside the road are open and up to 1500mm deep, with broad planks of wood to bridge across for pedestrian and vehicular passage.

Like in orowa houses, the majority (23/30) of households used kerosene stoves as the main cooking facility. 6 other houses (Houses 24, 26, 29, 32, 36, 48) used electricity and gas as either the main or the alternative cooking facility with a kerosene stove as contingency. One house (House 35) used the firewood as the main stove and House 32 has just acquired a sawdust range, which was a new tool being tried out in the mid-1990s in response to fuel scarcity, though both complained that there was also a scarcity of the right species of wood for burning, which is perhaps due to deforestation.

Food

Table 6.17 shows 52 instances of storage of raw foods and 31 instances of storage of transformed foods. In this section, a more detailed account of the storage pattern is presented. To recap, the raw foods consist of the durable grains (grains, cereals, tubers), and foods susceptible to decay (meats, fish, dairy, fruits and vegetables); and the transformed foods consist of cooked foods, processed foods and canned foods.

The storage distribution is as follows in Table 6.16

			STORAGE VESSELS			**STORAGE SPACES**	
	Eaten immed.	Sun-dried/ fried	Cpd in rooms	Cpd in kitchen/ hall	Fridge /freezer	Storeroom Pantry, Loft	Room or Parlour
				RAW			
Perishables (29)	8	1	1		19		
Ingredients (30)				10	1	1	18
Tubers (28)			14	8		6	
Grains (26)			14	10		2	
Fruits (26)	6		5	2	12	1	
Vegetables (26)	4	1	4	2	14	1	
				TRANSFORMED			
Cooked foods (30)			16	8	5	1	
Canned foods (22)			11	6	3	2	
TOTAL (217)	**18**	**2**	**65**	**46**	**54**	**14**	**18**

Like in orowa houses, households in rooming houses store most of their foodstuff in the room/parlour, either in locked soup cupboards or in cartons and baskets underneath their beds. However, there are more households with refrigerators in this sample, and they use it to store and preserve perishables, fruits, vegetables, cooked foods and opened canned foods. Incidentally, none of the six rooming houses in Enuwa (Houses A04, A10, A11, A14, A16 & A21 – 'A' being the zone prefix for the sample area) have a fridge (See Fig 6.17 below). Nevertheless, the results found that the fridge reduced the use of the soup cupboard considerably, particularly for cooked stews, and meats, fish and dairy products. However, these foods were preserved in the short term in the fridge section and not the freezer section, because the freezer chests in these fridges were small, and more preferred for cooling drinks and making ice cubes. Furthermore, in contrast to thirteen orowa houses that sun-dried their foods, only two rooming houses employed this method of preservation.

Households either have their soup cupboards in the bedroom, the orowa, or designated kitchen, and they tend to keep it locked particularly when it is situated in a shared space, though some still keep it locked in exclusive spaces like bedrooms to control access to the content from other members of the household.

Culinary related and domestic activity in Rooming houses

Table 6.17 (p 206 – 207) below shows a more detailed distribution of activities and storage in space.

As in Chapter Five – Orowa houses, activity and storage will be examined in the following order, starting with the hall, followed by the room, kitchen, backyard and then the frontyard. The chart is colour-coded as follows:

- Cooking: Red
- Dishwashing: Blue
- Foodprocessing: Yellow
- Ceremonial cooking: Green
- Eating: Peach
- Storage of implements: Purple
- Fridge/Freezer: Light blue
- Storage of food: Pink

Table 6.17	ROOMING HOUSE					
House No	HALL	ROOM	KITCHEN	FRONTYARD	BCK/SD YRD	ST/UTILITY
A04	FOOD STORAGE	EATING	COOKING		CEREMONIAL COOKING	
		FOOD STORAGE	DISHWASHING			
			FOOD STORAGE			
			IMPLEMENT STORAGE			
			FOODPROCESSING			
A10		EATING	COOKING	EATING	DISHWASHING	
		FOOD STORAGE	IMPLEMENT STORAGE		CEREMONIAL COOKING	
		IMPLEMENT STORAGE				
A11	COOKING	EATING	COOKING	CEREMONIAL COOKING		
	FOOD STORAGE	FOOD STORAGE	FOOD STORAGE			
	IMPLEMENT STORAGE		IMPLEMENT STORAGE			
			DISHWASHING			
A14	FOODPROCESSING	EATIING	COOKING		DISHWASHING	
		IMPLEMENT STORAGE	IMPLEMENT STORAGE			
		FOOD STORAGE	CEREMONIAL COOKING			
A16	COOKING	EATING		COOKING	IMPLEMENT STORAGE	
	EATING	FOOD STORAGE		DISHWASHING		
	IMPLEMENT STORAGE			CEREMONIAL COOKING		
A21	FOODPROCESSING	FOOD STORAGE			COOKING	
	EATING				DISHWASHING	
	IMPLEMENT STORAGE				IMPLEMENT STORAGE	
	FOOD STORAGE				CEREMONIAL COOKING	
B26	EATING	EATING	COOKING		CEREMONIAL COOKING	
	FOODPROCESSING	IMPLEMENT STORAGE	DISHWASHING			
	IMPLEMENT STORAGE	FOOD STORAGE				
		FRIDGE/FREEZER				
B27	EATING	EATING	COOKING	DISHWASHING		
		FOOD STORAGE	IMPLEMENT STORAGE	CEREMONIAL COOKING		
		FRIDGE/FREEZER	FOOD STORAGE			
B28	COOKING	EATING		DISHWASHING		
	IMPLEMENT STORAGE	FRIDGE/FREEZER		FOODPROCESSING		
	FOOD STORAGE			CEREMONIAL COOKING		
B29	COOKING	EATING	COOKING		DISHWASHING	
	IMPLEMENT STORAGE	FOOD STORAGE				
	FOODPROCESSING					
B30		EATING	COOKING		DISHWASHING	
		IMPLEMENT STORAGE	IMPLEMENT STORAGE		FOODPROCESSING	
		FOOD STORAGE			CEREMONIAL COOKING	
B31	COOKING	EATING			DISHWASHING	
	IMPLEMENT STORAGE	COOKING			FOODPROCESSING	
		IMPLEMENT STORAGE				
		FOOD STORAGE			CEREMONIAL COOKING	
B32		EATING	COOKING		DISHWASHING	
		FRIDGE/FREEZER	FOODPROCESSING		FOODPROCESSING	
					CEREMONIAL COOKING	
B33	COOKING	EATING		CEREMONIAL COOKING	FOODPROCESSING	
	DISHWASHING	IMPLEMENT STORAGE				
	IMPLEMENT STORAGE	FOOD STORAGE				
	FOOD STORAGE					
B34		EATING	COOKING		DISHWASHING	
		FOOD STORAGE	FOODPROCESSING		CEREMONIAL COOKING	
			CEREMONIAL COOKING			
			FOOD STORAGE			
			IMPLEMENT STORAGE			
B35	COOKING	EATING			CEREMONIAL COOKING	
	DISHWASHING	FOODPROCESSING				
		FOOD STORAGE				
		IMPLEMENT STORAGE				
		FRIDGE/FREEZER				
B36	FOODPROCESSING	EATING	COOKING	CEREMONIAL COOKING	DISHWASHING	
		FOOD STORAGE	IMPLEMENT STORAGE			
		FRIDGE/FREEZER				
B38		EATING	COOKING		DISHWASHING	
		FOOD STORAGE	IMPLEMENT STORAGE		FOODPROCESSING	
		FRIDGE/FREEZER			CEREMONIAL COOKING	
B39		EATING	COOKING	EATING	DISHWASHING	
		FOOD STORAGE	FOOD STORAGE		FOODPROCESSING	
		FRIDGE/FREEZER	IMPLEMENT STORAGE		CEREMONIAL COOKING	
B40	COOKING	EATING	COOKING		DISHWASHING	
		IMPLEMENT STORAGE	IMPLEMENT STORAGE		FOODPROCESSING	
		FOOD STORAGE			CEREMONIAL COOKING	
		FRIDGE/FREEZER				
B41		EATING	COOKING		DISHWASHING	
		FRIDGE/FREEZER	FOODPROCESSING		CEREMONIAL COOKING	
			IMPLEMENT STORAGE			
			FOOD STORAGE			
B42		EATING	COOKING		DISHWASHING	
		IMPLEMENT STORAGE	FOODPROCESSING		CEREMONIAL COOKING	
		FOOD STORAGE	IMPLEMENT STORAGE			
			FOOD STORAGE			

Table 6.17 continued	ROOMING HOUSE					
House No	HALL	ROOM	KITCHEN	FRONTYARD	BCK/SD YRD	ST/UTILITY
B43	FOODPROCESSING	EATING	COOKING		DISHWASHING	
		IMPLEMENT STORAGE	IMPLEMENT STORAGE			
		FOOD STORAGE				
		FRIDGE/FREEZER			CEREMONIAL COOKING	
B44		EATING	COOKING			CEREMONIAL COOKING
		FOOD STORAGE	FOODPROCESSING			IMPLEMENT STORAGE
		FRIDGE/FREEZER	DISHWASHING			FOOD STORAGE
			IMPLEMENT STORAGE			
			FOOD STORAGE			
B45	IMPLEMENT STORAGE	EATING		DISHWASHING	COOKING	
	FOOD STORAGE	FOOD STORAGE		CEREMONIAL COOKING	FOODPROCESSING	
					IMPLEMENT STORAGE	
B46		EATING		DISHWASHING	CEREMONIAL COOKING	COOKING
		IMPLEMENT STORAGE				FOODPROCESSING
		FOOD STORAGE				
B47		EATING	COOKING	FOODPROCESSING	CEREMONIAL COOKING	
		IMPLEMENT STORAGE	DISHWASHING			
		FOOD STORAGE	IMPLEMENT STORAGE			
		FRIDGE/FREEZER	FOOD STORAGE			
B48		EATING	COOKING	FOODPROCESSING	DISHWASHING	FOODPROCESSING
		FOOD STORAGE	CEREMONIAL COOKING			FOOD STORAGE
		FRIDGE/FREEZER				
B49	FOODPROCESSING	EATING	COOKING		DISHWASHING	
		IMPLEMENT STORAGE	CEREMONIAL COOKING			
		FOOD STORAGE	IMPLEMENT STORAGE			
		FRIDGE/FREEZER	FOOD STORAGE			
B50		EATING	COOKING		DISHWASHING	IMPLEMENT STORAGE
		FOOD STORAGE	FOODPROCESSING		FOODPROCESSING	FOOD STORAGE
		FRIDGE/FREEZER	IMPLEMENT STORAGE		CEREMONIAL COOKING	
			FOOD STORAGE		IMPLEMENT STORAGE	

Table 6.17: Distribution of activities and storage in rooming house

From the spatial distribution of activities, daily cooking and foodprocessing takes place in all types of culinary mapped spaces, i.e. in the hall, kitchen, frontyard, backyard, utility room and room, but increasingly more in the designated kitchen, and less in the hall. Ceremonial cooking does not take place in the hall or any sheltered space like the veranda, because of the cooking fumes, the increased number of cooks, and fire hazard from the firewood hearth. Eating takes place mainly in the room, and alternatively in the hall and frontyard, but not in the kitchen, sideyard/backyard or utility room. Dishwashing takes place mainly in the backyard, and also in hall, kitchen, and frontyard, but not in the room.

Conversely, the results for the range of activities accommodated in each type of space shows that cooking, eating, dishwashing and foodprocessing takes place in the hall but not ceremonial cooking. Also, in houses where dishwashing takes place in the hall (House 33, 35), or in the frontyard (House 16, 27, 28, 45. 46), then eating does not occur there. In addition, the distribution suggests that the backyard tends to be used for the messy and low status activities i.e. dishwashing and foodprocessing and the room is for the clean and high status activity (eating). Ceremonial cooking has the potential to portray the hierarchy between the women born into the patrilineage and the ones married into it, and in this sense can be classified as a low status activity. The messiness, fire hazard and multiple cooks of ceremonial cooking contribute to it taking place in outdoor space.

In the same vein, activities like cooking appears to move out of the integrated hall towards the segregated designated kitchen, and eating.

The following set of analysis will focus on the spatial co-presence of activities and storage in each of the culinary mapped spaces, beginning with the hall.

	Activities in the Hall	House No	Total
1	None	4, 10, 30, 32, 34, 38, 39, 41, 42, 44, 45, 46, 47, 48, 50	15
2	Foodprocessing only	14, 36, 43, 49	4
3	Cooking only	11, 28, 40	3
4	Eating only	31, 27	2
5	Eating and foodprocessing	21, 26	2
6	Cooking and foodprocessing	29	1
7	Cooking and eating	16	1
8	Cooking and dishwashing	33, 35	2

Table 6.18: Co-presence of activities in the hall of Rooming Houses

Four different types of activities take place in the hall, and there 16no possible combinations for four activities in one space: *(4C1 + 4C2 + 4C3 + 4C4 + 1(none)): Total = 16*, and eight of them were found. In contrast to orowa houses where 19 out of 20 houses carried out some form of culinary activity in the orowa, half of all rooming houses did not use the hall. In the rooming house hall, cooking and foodprocessing record an equalling frequency either as the sole activity or in combination with eating and the other, with seven houses, followed by eating in five houses, and dishwashing in two houses. Ceremonial cooking does not take place in the hall.

Table 6.19 shows the summary of the use of the hall for storage in all thirty houses:

	House No	Total
Implements	11, 16, 21, 26, 28, 29, 31, 33, 45	9 (30%)
Facilities (stoves)	4, 11, 14, 16, 21, 26, 28, 29, 31, 33, 35, 40	13 (43.3%)
Food	4, 11, 21, 28, 33, 45	6 (20%)

The bulky mortar and pestle, and the grinding stone are the main implements kept in the hall, along the kerosene stove casing and burner. Food tends to be kept locked in the soup cupboard in the hall, or in baskets for airing or drying in the short term and taken into the room at night. This is in contrast to orowa houses where all twenty households kept implements and fourteen households had facilities in the orowa (See Table 5.13).

Activity and storage in the room

The room is one of the most segregated spaces and is only more integrated than the service spaces. From Table 6.5 above, out of the common four culinary mapped spaces, the room ranked second in three houses, third in twenty-three houses and last in one house. It is usually a type 'A' space, and in a few instances, a type 'C' on a ring with the hall and an interconnecting room. It has one of the highest frequencies for food and implement storage (See Table 6.15 and Table 6.16 above).

Table 6.20 below is a summary of the combination of activities and storage in the room

	Activities and Storage in the room	House No	Total
1	Food storage	21	1
2	Eating, Food storage	4, 11, 16, 29, 34, 45	6
3	Eating, Food storage, Implement storage	10, 14, 30, 33, 42, 46	6
4	Eating, Food storage, Implement storage, fridge/freezer	26, 40, 43, 47, 49	5
5	Eating, Food storage, fridge/freezer	27, 36, 38, 39, 44, 48, 50	7
6	Eating, fridge/freezer	28, 32, 41	3
7	Eating, Cooking, Implement storage, Food storage	31	1
8	Eating, Foodprocessing, Food storage, Implement storage, fridge	35	1

There are two hundred and fifty-five possible combinations of eight activities and storage in one space (8C1 + 8C2 + 8C3 + 8C4 + 8C5 + 8C6 + 8C7 +8C8 = 255. From table 6.20, eight of the these possible combinations are found, with food storage occurring in all thirty houses, followed by eating in twenty-nine houses, and implement storage in thirteen houses. With the exception of two houses, (House 31 cooked in the room and House 35 did foodprocessing in the room), no other culinary related activities were undertaken there. The fridge was found in the room in fifteen houses.

Activity and Storage in the kitchen

From Table 6.15 above, there are designated kitchens in twenty-four houses in the sample consisting of six indoor kitchens, three in semi-detached structures and fifteen kitchens in detached outhouses. Six houses (Houses 16, 21, 28, 33, 45 & 46) do not have a designated kitchen room or structure. Of the households with access to a kitchen, House 31 does not use the designated kitchen on the ground floor for privacy reasons stated above, and House 35, also an upper floor resident like House 31, cites the distance of backyard kitchen as a deterrence. Houses 16, 21 & 46 have demarcated a veranda or corner of the backyard for the kitchen, but it is neither sheltered nor secured, whilst House 45 are tenant shopkeepers in the front of the house, who live, sleep and cook in the shop. From Table

6.4, the position of the kitchen in the rank order of integration amongst six spaces ranges from second in two houses, to third in two houses, fourth in three houses, fifth in thirteen houses and sixth in four houses. It is relatively segregated in twenty-two out of twenty-three houses with the room or outside space ranking as more segregated. In terms of distributedness, the kitchen is a type 'A' space in twenty-three houses, type 'B' in one house (House 10), and type 'C' in one other house (House 47).

	Activities in the kitchen	House Nos	Total
1	None	16, 28, 31, 33, 45, 46	6
2	Cooking only	10, 27, 29, 30, 35, 36, 38, 39, 40, 43	10
3	Cooking and foodprocessing	32, 41, 42, 50	4
4	Cooking and dishwashing	11, 26, 47	3
5	Cooking, dishwashing and foodprocessing	4, 44	2
6	Cooking and ceremonial cooking	14, 48, 49	3
7	Cooking, foodprocessing and ceremonial cooking	34	1

Table 6.21: Co-presence of activities in the kitchen

From the table, the second most frequent activity that takes place in the kitchen is foodprocessing in seven households, followed by dishwashing in five households, and ceremonial cooking in four households. The kitchens in three of the five houses that wash dishes in the kitchen alongside cooking etc. (House 4, 11 & 44) are semi-detached or integral structures to the main house, and have been built with drainage and plumbing, although water supply to these taps is irregular.

The use of outdoor spaces- frontyard, backyard and sideyard

Table 6.22 shows the distribution of activities in the frontyard and backyard/sideyard:

	Activities	Frontyard (30)	Backyard/Sideyard (30)	**Total**
1	None	18	5	**23**
2	Cooking, dishwashing and ceremonial cooking	1	1	**2**
3	Eating	2	None	**2**
4	Foodprocessing	2	1	**3**
5	Ceremonial cooking	3	5	**8**
6	Dishwashing	1	5	**6**
7	Dishwashing and ceremonial cooking	2	5	**7**
8	Dishwashing, foodprocessing, ceremonial cooking	1	7	**8**
9	Cooking and foodprocessing		1	**1**

Twelve rooming households use the frontyard for culinary-related activity in contrast to twenty-five orowa households that used the backyard and sideyard. Only House 44 does not use the outdoor space for any form of domestic activity, for two reasons - it is a self-contained first floor flat occupied by a single nuclear family, and the ground floor premises and backyard are used for private occultist rituals by a traditional spiritualist / herbalist clinic, and its secrecy and status is maintained by restricting access to persons and the 'polluting' effect of regular domestic activities.

Dishwashing and ceremonial cooking are more dominant in the backyard than in the frontyard, and eating only takes place in two houses (Houses 10, 39), and in the frontyard. The combination of dishwashing, with ceremonial cooking has the highest frequency with thirteen houses, and in eight of them, with cooking or foodprocessing.

Only two houses cooked in the open space – House 16 – in the frontyard, and House 45, in the open backyard. Seventeen houses had detached and semi-detached kitchens situated in the backyard. The respondent in House 16 cooks in the frontyard because she also fries and sells bean cakes (*akara*) for a living, and considers it economical to prepare food for the family at the same time as she does for sale.

Table 6.17 also shows that activities were not duplicated in frontyard and backyard, i.e. none of the activities carried out in the backyard also took place in the frontyard of each house, as seen in orowa houses, and this was consistent for all culinary activities and storage and all houses. This suggests the frontyard and backyard in rooming houses had a clear identity, which determined what activities were spatially compatible or incompatible there. Furthermore, the higher frequency of use of the backyard over the frontyard suggests that the backyard tends to be more associated with domestic activity and culinary work than the frontyard.

Compatibilities and incompatibilities between spaces and activities

In this next section, the co-spatial occurrence of at least any two activities in any one space will be assessed. Using the five activities, there are ten possible co-spatial combinations of two of them taking place in one space – *i.e. 5C2 = 10*.

Table 6.23 below summarises the combination of at least two activities in one space as follows:

No	Activities	Total
1	Eating and Cooking	1
2	Eating and Dishwashing	0
3	Eating and Foodprocessing	0
4	Eating and Ceremonial cooking	3
5	Cooking and dishwashing	10
6	Cooking and foodprocessing	9
7	Cooking and ceremonial cooking	6
8	Dishwashing and foodprocessing	9
9	Dishwashing and ceremonial cooking	16
10	Ceremonial cooking and foodprocessing	7

Table 6.23 shows that cooking, foodprocessing, dishwashing and ceremonial cooking are spatially compatible activities, as they occur in combination with at least one of the other activities in some of the culinary-mapped spaces in the house. The only activity that is not spatially compatible with some of the above activities is eating. It is not found in spatial combination with dishwashing or ceremonial cooking in any of the houses, and it only takes place with cooking in one house, and food processing in three houses. The highest frequency of space-activity combination is of dishwashing and ceremonial cooking which is found in at least sixteen instances, followed by cooking and dishwashing in ten instances.

Conversely, in terms of activity in space compatibility, from Table 6.18 p 195-196, ceremonial cooking does not take place in the hall; cooking, dishwashing and ceremonial cooking do not take place in the room; eating does not take place in kitchen and backyard; eating and dishwashing do not take place in the store/ utility room; but each of the five activities occurs in the frontyard. Although this may suggest that the frontyard could be the most culinary-spatially compatible space in the house, it should be borne in mind that at least eighteen out of thirty rooming houses do not use the frontyard for any culinary-related activity.

Sensory proximity of activities

In terms of whether activities were permitted or forbidden in the cooking space with respect to activities visible, permeable or in sensory proximity to the cooking space, the study shows that where cooking takes place in detached or semi-detached kitchens in the backyard, other activities in the backyard, including non-culinary ones will be in the visual

field. When cooking takes place in the hall, the visual fields are the rooms (eating), the frontyard and the backyard (for all other activities). The results show that the backyard is least used for cooking and eating, for its sensory proximity to convenience facilities, and the frontyard is least used overall, and also for cooking and eating, for its exposure to the open street. The results also show that the kitchen is not used for eating, and though the sensory proximity of backyard activities may have an effect, there is perhaps a more pertinent reason, i.e. it is considered inappropriate to eat where food is cooked.

Step distance, boundary and spatial integrity

The average step distance for the five activities in all thirty houses is as follows:

Rooming	Cooking	Dishwashing	Foodprocessing	Ceremonial cooking	Eating	**Mean**
		1.45	1.61	1.98	2.90	**1.68**

Table 6.24: Step distance of activities from the cooking space in rooming houses

The data table may be found in Appendix Five –Step Distance Data

All activities are more than one step away from the cooking space, and eating is almost three steps away, and as such all related activities tend to weaken the integrity of the boundary of the kitchen.

In orowa houses the step distance from the cooking space is as follows:

Orowa	Cooking	Foodprocessing	Dishwashing	Eating	Ceremonial cooking	**Mean**
		0.85	1.389	1.689	1.87	**1.389**

Table 6.25: Step distance of activities from cooking space in orowa houses

This means that on the whole, culinary activity in the rooming house is more widely dispersed from the cooking space than it is with orowa houses.

The step distance between the place of retrieval of items and the place of work is measured as described in Chapter 4 – Methodology and presented in the following table 6.26

House	Mortar	Cook utensil	Elect appliance	Fridge Freezer	Av. Step Distance
Mean	1.0	1.1	2.4	3.06	1.411

Table 6.26 showed a gradual increase in step distance from the cooking space to the mortar and grinding stone, then utensils, electrical appliances and the fridge, with an overall mean step distance of 1.411. It shows that heavy items like the mortar and grinding stone tend to be situated close to where it is to be used such that as many as twenty houses kept the mortar in the cooking space. In a sense, heavy and bulky items such as these tend to strengthen the boundary. In contrast, the utensils, by virtue of their portability, are able to move away from the boundary of the kitchen, and the distance increases as one moves towards electrical appliances, towards more secure storage spaces for safekeeping. Essentially, fragile status goods are kept away from the kitchen but the durable traditional implements of low status are kept closer

The following table 6.27 summarises the comparative average step distance for each item for orowa and rooming houses as follows:

Housetype	**Mortar**	**Cooking utensils**	**Electrical appliances**	**Fridge/ Freezer**	**Average step distance**
Orowa house	0.8	1.4	1.7	1.8	1.271
Rooming house	1.0	1.1	2.4	3.06	1.411

The table shows that the step distance between the place of work (cooking) and the place of storage and retrieval increases from orowa houses to rooming houses. The pattern increases in the same order for both housetypes thus indicating that implements, being closer to the cooking space, tend to strengthen the integrity of the boundary of the cooking space, and facilities would tend to weaken it. The mortar and grinding stone are within one step of the cooking space in both orowa and rooming houses, and within two steps for all culinary-utensils in orowa houses, whereas, electronic appliance and the fridge are situated over two steps away in rooming houses.

Table 6.28 below compares the mean step distance between the place of storage of different foods to the cooking space for orowa and rooming houses:

Mean Step Distance between the place of storage and the cooking space		
FOOD	Orowa Houses	Rooming Houses
Tubers	1.4	1.9
Grains and Cereals	1.6	1.89
Fruits and Vegetables	1.6	2.5
Ingredients	1.6	1.97
Perishables	1,7	3.11
Cooked foods	1.7	2.2
Canned foods	1.8	2.06
Total Mean	**1.612**	**2.21**

The table shows that in rooming houses, tubers and grains and cereals are kept closest to the cooking space, and perishables are furtherest, in a pattern similar to that of orowa houses. However, the step distances range from 1.4 to 1.8 in orowa houses, and from 1.89 to 3.11 in rooming houses, which means that a user travels longer steps between the place of work and the place of retrieval in rooming houses.

Collectively, the average step distance for culinary activity, utensils and food is higher in rooming houses than in orowa houses as shown in the table 6.29 below:

	Orowa houses	**Rooming houses**
Average step distance: Culinary Activity	1.604	1.68
Average step distance: Utensils	1.271	1.41
Average step distance: Food	1.612	2.21
Average step distance: Total	**1.486**	**1.95**

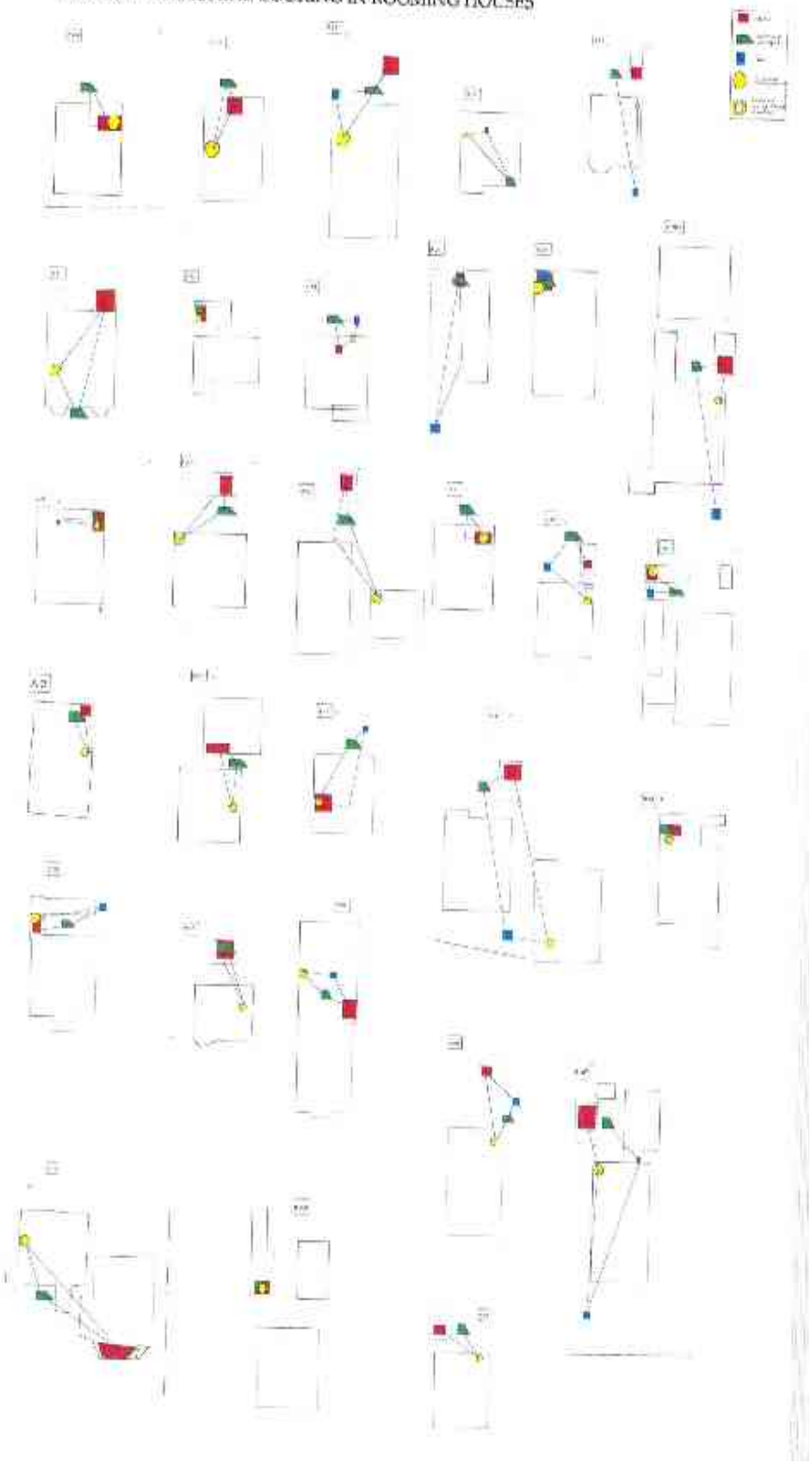
Table 6.29: Step distances from the cooking spot in orowa and rooming houses

The results show that culinary activity is closer to the cooking space boundary in orowa houses than in rooming houses. Utensils are stored closest to the cooking space for both housetypes than food, with orowa houses having a lower step distance in all categories than in rooming houses.

Ceremonial Cooking on site

Fig 6.13 below shows the site layout for ceremonial cooking based on the responses from the fieldwork. It can be seen that for most houses, except House 11, ceremonial cooking takes place in the backyard. The circulation between the cooking hearth, storage space and the water source may however lead to the frontyard, as three houses have their wells in the frontyard. However, several households said they preferred to fetch water in plastic jerry cans for use for all domestic work than the well. Most households keep ceremonial cooking utensils in their rooms rather than in the cooking space as they would the daily cooking implements, in order to preserve it. These consist of chinaware, glassware and silverware, more than pots and pans. Some are wedding presents. There are no roof lofts in rooming houses, like in orowa houses, so any items stored in the hall would have to be kept in the soup cupboards.

FIG 6.12 - CEREMONIAL COOKING IN ROOMING HOUSES



At times of ceremonies, the women tend to call on their friends and close family members to assist in the food preparation and clearing up. As they live in shared accommodation, they have to ensure that they do not obstruct the use of facilities by other co-residents as unlike in orowa houses, they are not likely to be part of the celebration. As a result, some respondents stated that they would prefer to go back to their natal family compounds to prepare for major celebrations than to use rented accommodation. Nevertheless, celebration cooking such as for naming ceremonies, Christmas, Islamic festivals etc do take place in these premises, though on a small scale for tenants, and a large scale for landlords.

Role allocation and patterns of domestic hegemony

Mothers, daughters and sons bear the responsibility of food preparation and domestic work in rooming households as seen in the table below, which summarises the personnel in order of responsibility for food preparation. The last column (in italics) shows the results for orowa houses as stated in Chapter 6.

Group	Cooks in order of responsibility	House Nos	Total for Rooming houses (%)	*% Total for orowa houses*
1	Mother only	10, 35, 36	3 (10%)	*5%*
2	Mother and Daughter/s	16, 27, 33, 38, 39, 40, 41, 42, 44, 46, 50	11 (36.7%)	*55%*
3	Daughter/s and Mother	32, 34, 48, 49	4 (13.3%)	*5%*
4	Daughters only	None	0	*5%*
5	Mothers, Daughter/s and Son/s	4, 11, 14, 21, 28, 31, 43	7 (23.4%)	*20%*
6	Daughter/s and Son/s	None	0	*10%*
7	Mother and Son	26, 30, 47	3 (10%)	
8	Daughter, Son and Mother	45	1 (3.3%)	
9	Son and Daughter/s	29	1 (3.3%)	

Table 6.30: Role allocation in rooming households

From the table, the females had sole responsibility for cooking in eighteen (18) households (or 60%), and males were involved in the last twelve (12 or 40%) households. This is in comparison to orowa houses were females were solely responsible in 70% of households, and males involved in 30%. As such, there is an increase in male involvement in domestic matters from orowa to rooming houses. In orowa houses, the males are sons, and in most instances, under 21years old. Their roles are to assist in heavy-duty tasks such as lifting, fetching water, chopping wood, and sometimes dishwashing, and they are often taught to

prepare food in order to be independent when they leave home to work or study elsewhere. House 29 in Group 9 on Table 6.30 above is the only one where the son had the main responsibility for cooking, and that is because he lived with his widowed father and much younger sister.

The order of responsibility does not always correlate to the hierarchical status of individuals for in households where the children have the main responsibility, they are usually still under the supervision of the secondary cook, namely the mother and for both housetypes, in 20% of households, adult or teenage children had the main responsibility for cooking.

SUMMARY

In this chapter, it has been seen how the intense circulation in the hall has reduced its use for domestic activities to cooking, such that households move towards the segregated rooms, which provide exclusive occupation for their activities. Furthermore, there is increased male involvement in domestic activity relative to the orowa houses.

In the next chapter, the modern house will be examined to see what trends persist or change in another domestic environment

VII *The Modern House & Self-Sufficiency*

In this chapter, the identikit of status, solidarity and social mobility in space, activity and objects were found to alter. Though the modern house was exclusively occupied by a single nuclear family, had a variety of spaces equipped and designated for a variety of uses, as well as the infrastructure and utilities to back up its self-sufficiency, yet, its culinary footprints extended beyond the four walls of the kitchen and its work triangle. Solidarity was found to be trans-spatial and related to a shared consciousness of elite behaviour. The kitchen and some culinary activities were found to have a more elevated status syntactically, in terms of its equipment and its personnel, in the sense that some fathers participated in food preparation and dishwashing, which was not found in the previous chapters. Furthermore, as designated space labels implied specific space-use, it was possible to check how well these spaces in use adhered to the functions implied by their labels, and how the dominant activities implied by the space label permitted or disallowed other activities or objects into the space, and it was found in several situations, that other social factors such as security and convenience overrode the boundary requirements.

INTRODUCTION

The objective of this chapter is to present the results of the analysis of the modern house as the third part of the evolutionary development of the domestic landscape. The heads of these households are university lecturers with at least two higher degrees and senior administrators. They lie in the middle stratum of the socio-economic structure and are the highest of the households from the three study areas. They live in modern houses with public utilities and infrastructure in terms of plumbing, drainage, water supply, electric mains power and lighting.

As in Chapters Five and Six, this chapter addresses how status, solidarity and social mobility are manifested in space, activities and storage patterns for utensils and food, an in role allocation by looking at the nature of spatial co-presence, difference and fluidity of activities and objects across boundaries. The modern housetype takes its sociological

reference from the African colonial bungalow as a house for the single nuclear family with specialised functions to specific rooms and spaces. Unlike the orowa and rooming houses where the orowa, iyara, hall and room were designated as multi-functional, the modern house had distinct activity-related labels for living, dining, cooking, studying, sleeping, storage, circulation, utility, toileting, bathing and storage. Households did not share their spaces with others, which meant that they had complete control and use of all available space to appropriate as they deem fit. The floor plans and site layout were designed by firms of trained architects and planners as part of the university masterplan, and twelve different layouts were studied. It was observed that in houses with identical floor plans, individual households appropriated spaces in different ways, and the footprints of culinary activity and storage was seen to extend beyond the work triangle.

HOUSEFORM AND SITE

Twenty-five modern houses in the Obafemi Awolowo University senior staff residential quarters were studied (See Fig 7.1). Unlike the orowa and rooming houses in Enuwa and Akarabata, the modern houses are single-family houses were situated within hedge-boundary sites and with fully self-contained living and integral convenience and service facilities within the main house. As such there were no multiple family arrangements though some families have members of their extended family, kin, wards, friends and servants who are non-related as members of the household. Twenty-two households were single nuclear families and fourteen of these had extended kin and friends, i.e. adolescent cousins or family-friends who were resident in the short term for the duration of their secondary education or university degree. These wards did not always participate in the domestic duties of the household though they may be asked to run some errands like wash the family car. Two households hired resident housemaids to care for infant children and carry out domestic work. Hence, these sixteen households are described as 'situation-hybrid' families. Three households had extended family members resident in the long term, and in these cases were grandmothers who moved in with the family.

Table 7.1: the comparative distribution of household structure across the three samples.

Household Type	Orowa Houses	Rooming Houses	Modern Houses	Total
Nuclear family	4	23	6	33
Extended family	13	5	3	21
Polygynous family	3	2	-	5
Situation-hybrid family	-	-	16	16
Total	20	30	25	75

Fig 7.1 – Floor plans of university houses

The households were tenants of the university and had tenure as long as they were employed the university. Within each hedged-boundary was an entrance drive with parking for at least two cars, a boy's quarters outhouse in the back, and an external reservoir tank. The type of the accommodation allocated to each household was according to the staff grade of the most senior person in the employment of the university, which in most cases would be the husband. Nevertheless, there were some uxorilocal households where the house was allocated to the wife, as she was the one employed by the university, but her husband worked in private practice in town. There were also some households headed by widowed or divorced women.

As the house size and style implied the status of the inhabitants, families aspired to move to a "higher-grade" house once the head gets a promotion. The two storey house (House 51 & 52) for instance are allocated to professors and university officers – bursar, registrar, librarian; the bungalows to senior lecturers and administrators and the flats to graduate assistants and junior lecturers. Households vacate the premises on promotion to a higher-grade house, or leaving the employment of the university, retirement or death of the allocatee, and the house is passed on to another tenant.

The study houses consists of nineteen bungalows, four storey houses, and two flats as in Fig 7.1, and table 7.2 below:

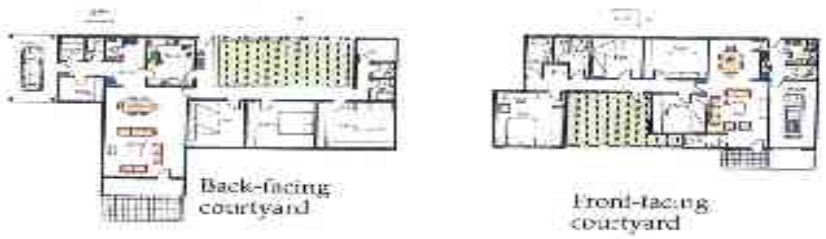
	House style		House Nos	Total
1	2 storey houses		51, 52, 57, 58	4
2	Bungalows	Courtyard bungalows	53, 54, 55, 56, 63, 73, 74	7
		Corridor bungalows	61, 62, 64, 65, 66, 67, 68, 69, 70, 71, 72, 75	12
3	Flats		60, 61	2

The generic layout of the houses separated the living areas – living room, dining room and kitchen, from the sleeping areas – bedrooms and bathrooms into two distinct wings. In houses where access from the front door led to an entrance lobby, the living and sleeping wings were distributed to opposite sides of the lobby (See Houses 55, 56, 64, 65, 66, 71 & 72). In houses where the front door led directly into the living room, access to the bedroom wing was through the living room (See Houses 53, 54, 59, 60, 61, 62, 63, 64, 67, 68, 69, 70, 73, 74, & 75). In the storey houses, the staircase next to the front door divided the wings to separate floors (see Houses 51, 52, 57 & 58). The study was situated within the living areas in the bungalows, but next to the bedrooms on the upper floor in the two-storey houses.

Fig 7.2 showing the two house access styles: Entrance hall and Living room access

All rooms including toilets, bathrooms and storerooms had an external window for natural lighting and ventilation. Three of the courtyards in the courtyard-bungalows were oriented to face the approach road (Houses 63, 73, 74), and the other four (Houses 53, 54, 55 & 56) were oriented towards the back of the site. The courtyards were enclosed by rooms on three sides, and by perforated screen wall on the fourth. The front-facing courtyards were terminal spaces i.e. do not have any access to the outside space, and were situated around the bedroom wing. The back facing courtyards were situated around the living, kitchen and entrance areas, and had a gate in the perforated wall leading to the backyard. (See Fig 7.3).

Fig 7.3 showing the difference between a front-facing and back-facing courtyard bungalow:

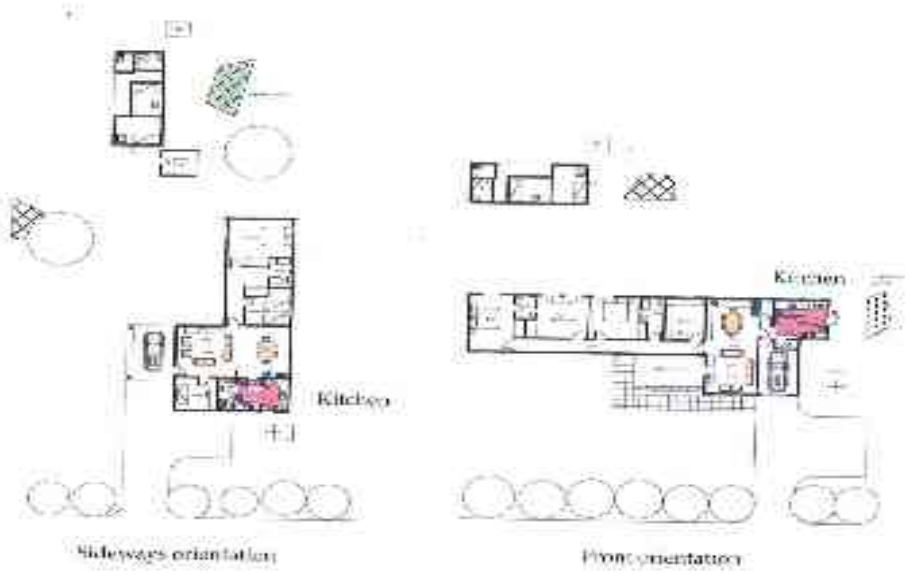


Eleven houses (House 51, 52, 57, 58, 64, 67, 68, 69, 70, 73 & 74) had garages, which in all houses except House 64, was directly connected to the kitchen. The garage was also used as additional storage space, particularly for bulk food items, old books and equipment, ceremonial cooking utensils, food and drink cartons. In House 51, the garage was

converted to a kiosk for selling groceries, and this has met with mixed reviews from neighbours as being either useful or inappropriate for the area. Twelve of fourteen houses (House 51, 52, 55, 56, 61, 62, 63, 65, 66, 71, 72, 75) have car porches leading to the front entrance porch, and to the side door in two other houses (House 53 & 54). The car porch in House 75 was converted to a utility room for the kitchen by building in a net-frame enclosure within the columns and beams. The two flats, (House 59 & 60) do not have a garage or car porch.

There were two generic layouts for the house-orientation on site. In the first layout, the house faced the entrance drive as found in 18 houses, whereby, the approach road was visible from the living room: see Houses 52, 53, 54, 55, 56, 57, 58, 59, 60, 63, 67, 68, 69, 70, 71, 72, 73 & 74. In the second layout, the house was oriented sideways to the approach road, and it was visible from the kitchen instead: see Houses 51, 61, 62, 64, 65, 66 & 75.

Fig 7.4 showing the two different layout of house/site orientation:



The reservoir tank is situated next to the approach road, so that it can be refilled by water tankers and in most houses, the tank is easily accessible to the kitchen, except in House 52, which is on a corner plot and has the tank on the opposite road away from the kitchen. The Boy's Quarters is at the back of the site with its front veranda oriented away from the

house, such that when two main houses are situated back to back, the two BQs then face each other and share access points across the hedge boundary.

Shared, Exclusive and Service Spaces

The modern house has three distinct sectors – the living spaces (living room and dining room), the sleeping spaces (bedrooms) and the service spaces (kitchen, backyard and bathrooms Although the flats (Houses 59 & 60) share the entrance foyer and communal stairs, the modern houses in the sample are exclusively occupied by single households. As such, within an individual household, the living room, dining room, kitchen, and bathroom are shared spaces, and the bedrooms are exclusively occupied to the extent to which parents and children would have access to each other's bedrooms, and children may have a right to privacy, but not necessarily to exclusive occupation. In contrast to orowa and rooming houses with shared/exclusive/service space classification, it is more appropriate to describe the classification as visitor/inhabitant and service spaces in modern houses. In the layout, service spaces are interspersed with visitor and inhabitant spaces, and are an integral part of the main house, whereas in orowa and rooming houses, services were outhouses in the backyard. The pattern of visitor/inhabitant/service space distribution is expressed as in Fig 7.5 and the relevant floor plans are in Fig 7.6 below:

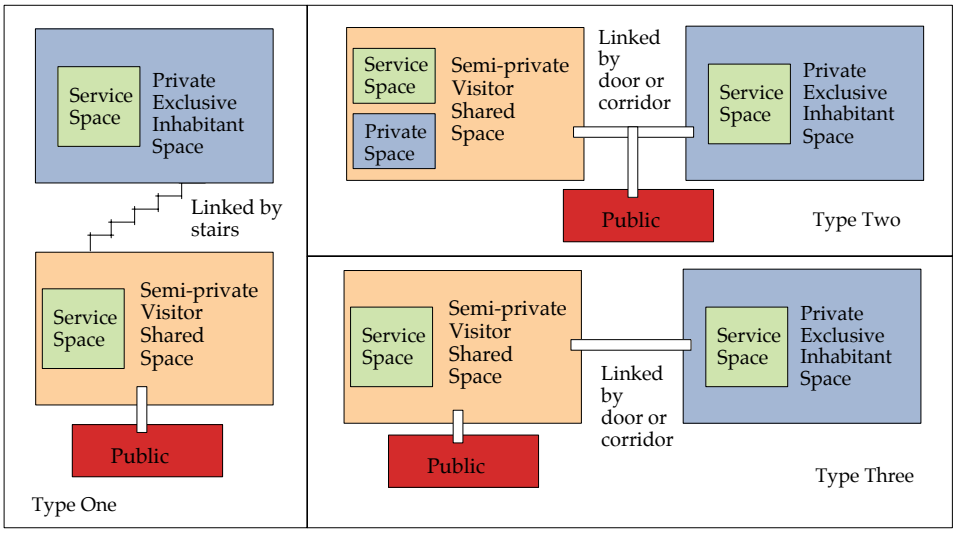
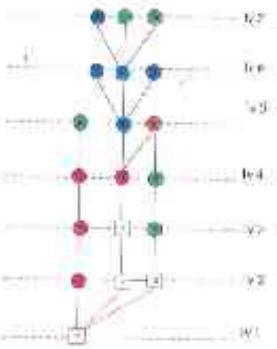


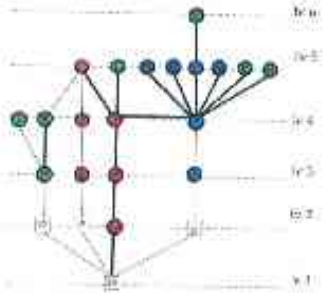
Fig 7.5 – Schematic zoning of spaces for visitor/inhabitant access in the modern house

FIG 7.6 - PLANS AND J-GRAPHS OF MODERN HOUSES

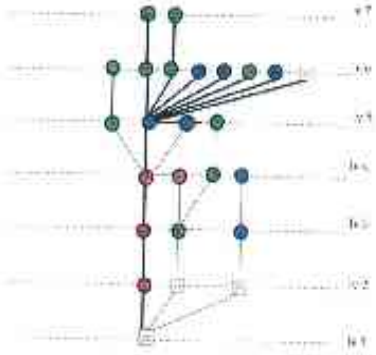
Typical two-storey house



Typical corridor bungalow



Typical courtyard bungalow



There are four houses in Group One, twelve in Group Two and nine in Group Three. Group One houses have the living room, dining room and the kitchen with toilets on the ground floor, and the bedrooms and study on the first floor. Group Two has the same split but all on a single floor. Group Three has the study and the garage situated amongst the living/dining room sectors. In this instance, the garage is considered part of the private sectors of the house because unlike the car porch, the garage has restricted accessibility to non-residents. One observation was the presence of living-dining grouping and the absence of kitchen-dining grouping. This pattern may have been due to the colonial heritage of the housetype whereby households employed servants to carry out their domestic work including cooking, in which case the kitchen would have been considered a space of service and for the servant and had to be separate from the place where food was consumed. There is also a possibility that the messiness of food preparation relegates it to the backstage such that even if the mistress of the house was the personnel in the kitchen, its activities had to be separate from the presentable living and dining areas where there was visitor access.

The analysis compared the percentage ratio of spaces allocated to toilets, bathrooms and the kitchen (as service spaces) to the total number of convex spaces to give an indication of the rate of sharing among residents i.e. if a two bedroom house and a three bedroom house each have only one bathroom, then the two bedroom house has less competition for the shared facilities. The results show that the percentage of service spaces ranged from 19% in Houses 57 & 58 to as high as 45% in House 75, with an average percentage ratio of 26.6%, which means more than two out of every ten spaces are designated to a service or convenience use.

Likewise the distribution of service space to culinary mapped spaces was checked for modern houses and compared to rooming and orowa houses, and it was found that there were only six houses where culinary mapped spaces exceeded the designated service spaces. Fifteen houses had more services spaces than were culinary mapped indicating that the culinary related use did not occur in more convex spaces than were designated, and was as such not dominant in the house -see Fig 7.6 below. Please note that the kitchen is considered both a service space as well as a culinary mapped space.

Fig 7.7 – The comparison of shared, exclusive and service spaces in all housetypes

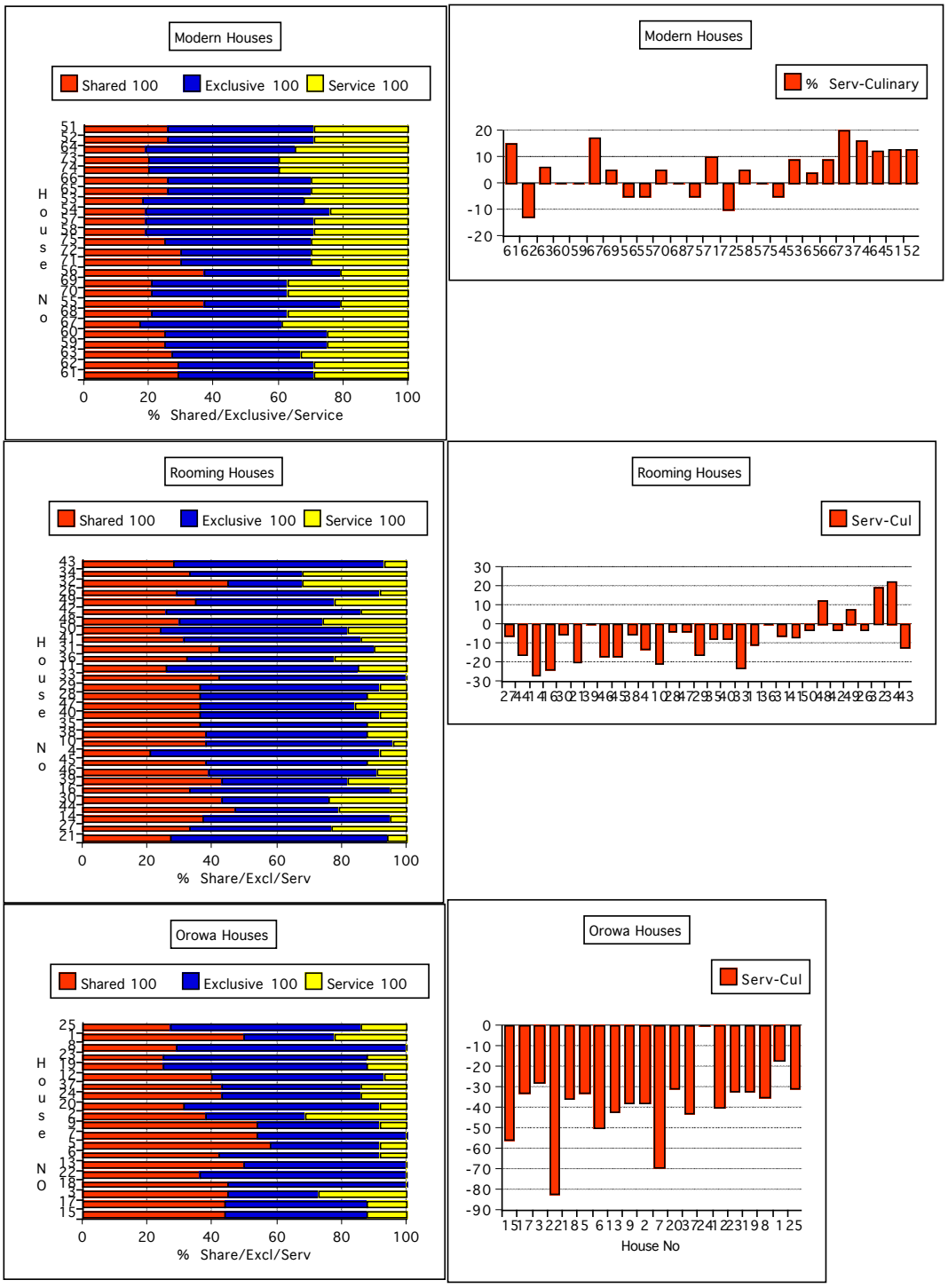


Table 7.6 shows that the number of convex spaces designated for service use increases inversely to the decrease in the percentage number of spaces that are culinary related from orowa to modern houses.

Table 7.3: Comparison of the percentage of service spaces in all three housetypes

House type	% of service spaces	Mean %
Orowa	0% to 36.3%	14.9%
Rooming	4% to 30%	15.2%
Modern	19% to 45%	26.64%

Table 7.3 above showed a gradual increase in the numbers of spaces designated for service and convenience facilities from orowa to modern houses. The modern houses had the lowest rate of sharing as fewer people compete for a higher number of facilities and they are integral to the main house whereas in orowa and rooming houses they are mainly in outhouses.

SPACE SYNTAX ANALYSIS ON MODERN HOUSES

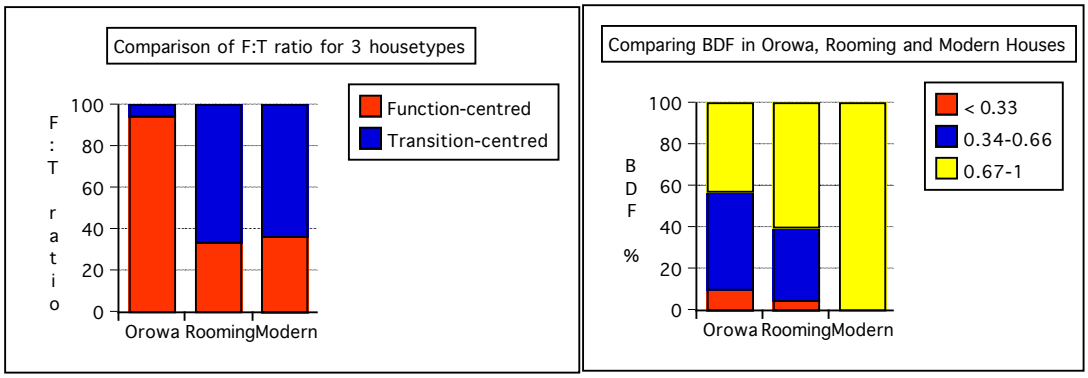
The following table 7.4 is a summary of some of the syntactic analysis on the floor plans, and the houses have been arranged in ascending order of convex spaces.

House No	Sample Area	No- convex spaces	Mean Integration	Total Depth	Mean step depth	Base Difference Factor	Transition: Function Ratio
61	Unife	14	.876	6	3.080	.710	.400
62	Unife	14	.876	6	3.080	.710	.400
63	Unife	15	.925	6	3.140	.738	.667
59	Unife	16	.785	6	3.200	.729	1.000
60	Unife	16	.785	6	3.200	.729	1.000
67	Unife	18	.932	6	3.060	.688	.583
68	Unife	19	.888	6	3.000	.700	.727
55	Unife	19	.951	7	3.500	.699	.357
70	Unife	19	.888	6	3.000	.700	.727
69	Unife	19	.888	6	3.000	.700	.727
56	Unife	19	.951	7	3.500	.699	.357
71	Unife	20	1.078	5	2.680	.786	1.000
72	Unife	20	1.078	5	2.680	.786	1.000
75	Unife	20	1.058	6	2.800	.770	.429
58	Unife	21	.732	8	3.700	.734	.455
57	Unife	21	.731	8	3.700	.733	.455
54	Unife	21	1.105	6	3.100	.686	.500
53	Unife	22	1.115	5	2.950	.679	.571
65	Unife	23	1.120	6	2.910	.757	.769
66	Unife	23	1.120	6	2.910	.757	.769
74	Unife	25	.980	7	3.180	.744	.471
73	Unife	25	.980	7	3.180	.744	.471
64	Unife	26	1.115	6	2.680	.844	.857
52	Unife	31	.920	7	4.230	.784	1.071
51	Unife	31	.920	7	4.230	.784	1.071
Modern houses		**20.68**	**0.952**	**6.28**	**3.188**	**0.736**	**0.673**
Rooming houses		**27.2**	**1.141**	**5.533**	**3.944**	**0.651**	**0.584**
Orowa houses		**13.55**	**1.467**	**5.250**	**2.922**	**0.684**	**0.317**

The number of convex spaces per house ranged from fourteen to thirty-one, and the mean was 20.68. The average number of convex spaces and the mean depth 'k' was higher than in orowa houses but lower than in rooming houses, but as single household dwellings and in comparison to rooming and orowa houses, modern houses had the highest space to person ratio. Modern houses also had on average the lowest mean integration, yet the highest total depth of the three housetypes.

Ten houses had T:F ratios less than or equal to 0.5 and were function-centred, and seventeen houses scored greater than 0.5 and were transition-centred. This meant that 60% of the modern houses had more than half of the spaces designated for circulation, in comparison to rooming houses where it was 66%, and orowa houses it was only 5%.

These comparative statistics for F:T and BDF are presented in Fig 7.8 below:



Out of the ten function-centred modern houses, seven of them had their core circulation revolve around the living/dining room, and it was the most integrated space and usually the first space accessed from the front door. Fifteen modern houses were transition-centred, and in contrast, circulation revolved around a circulation space, the entrance hall. The entrance hall was the first space accessed from the front door and it divided the living areas from the sleeping areas. The corridors were too narrow to be used for any other activity, though some form of storage existed in the way of laundry bins, cardboard boxes of bric-a-brac, but it could not be designated as functional spaces as found in the orowa or rooming house hall. The results showed that there was no direct correlation between an increase in the number of convex spaces in the house and a high transition-centred rating for the house, but there was a significant correlation with houses having spaces designated as verandas, terraces, patios and balconies in relation to the total number of spaces.

Furthermore, the BDF charts showed a gradual homogenising of the layout from orowa, to rooming to modern houses, where the BDF was closer to 1.

Integration and Segregation

Table 7.5 is the integration mapping on the convex break-up of the floor plans, and it showed that the living room, corridor leading to the bedrooms, and the dining rooms tended to be most integrated spaces, but the bedrooms, storerooms and toilets tended to be the most segregated. The kitchen ranked about halfway. The integration mapping on the convex plans of the house showed a more varied distribution of colours across the spectrum from red to blue, whereas the mapping of orowa and rooming houses had the very integrated orowa and backyard flanked by very segregated iyara and outhouses, making a red and blue distribution.

Table 7.5 – Integration mapping of culinary mapped spaces

MODERN HOUSE - INTEGRATION						
House No	Living Room	Dining Room	Backyard	Kitchen	Bedroom	Outside
51	1.048	1.065	1.294	0.93	0.729	0.985
52	1.048	1.065	1.294	0.93	0.729	0.985
53	1.814	***1.814***	1.49	1.48	1.013	1.013
54	1.674	***1.674***	1.54	1.48	1.013	1.013
55	1.041	***1.041***	0.922	0.896	0.761	0.701
56	1.041	***1.041***	0.922	0.896	0.761	0.701
57	1.132	0.837	0.652	0.652	0.601	0.713
58	1.132	0.837	0.652	0.652	0.601	0.713
59	1.318	1.054	0.694	0.879	0.583	0.799
60	1.318	1.054	0.694	0.879	0.583	0.799
61	1.601	1.095	0.631	0.832	0.667	0.631
62	1.601	1.095	0.631	0.832	0.667	0.631
63	1.681	1.121	0.636	0.841	0.739	0.785
64	1.307	0.834	1.727	1.125	1	1.24
65	1.346	0.948	1.438	0.802	1.043	0.993
66	1.346	0.948	1.438	0.802	1.043	0.993
67	1.626	***1.626***	0.732	0.915	0.875	0.836
68	1.536	1.241	0.787	0.75	0.8	0.896
69	1.536	1.241	0.787	0.75	0.8	0.896
70	1.536	1.241	0.787	0.75	0.8	0.896
71	1.344	0.949	1.467	0.827	0.896	1.008
72	1.344	0.949	1.467	0.827	0.896	1.008
73	1.785	1.362	0.849	1.102	0.959	0.797
74	1.785	1.362	0.849	1.102	0.959	0.797
75	1.537	1.14	1.039	0.841	1.039	1.14

From the colour-coded table above, the living room ranked in the highest range of the spectrum, the kitchen tended to rank in the middle range and the bedroom ranked in the lower range of the spectrum. The living room was 'red' in most houses where the direct front door access to the house led straight into the living room, (i.e. all 'red-mapped in table' except House 54 – which is 'pink'. The living room of other houses mapped in orange, yellow, and dark green (House 51, 52, 55, 56, 64, 65, 66, 71, 72, 75) – all had entrance halls that separated the living areas from the sleeping areas. This also showed that the shallower the living room was from outside, the higher the integration value. The dining room in five houses, (indicated in bold italics) had a living/dining room as one continuous convex space. The integration values for dining were therefore high for these houses.

From the analysis, eight spaces were found to be 'culinary-mapped.' They were the living room, the dining room, the kitchen, the bedroom, the courtyard/backyard, the storeroom, the utility room and the garage. Unlike in orowa and rooming houses, the frontyard was not culinary-mapped in any of the modern houses. The analysis of orowa and rooming houses suggest that there are explicable reasons for some spaces other than the kitchen to be culinary-mapped. For instance, the living room and the dining room would be used for eating; the storeroom and utility room for the storage of utensils and food; and the courtyard/backyard, for ceremonial cooking. What was not so clear is why spaces like the bedroom and the garage should be culinary-mapped, as they both were clearly functionally classified by virtue of their space labels. The bedroom does not have the equivalent multi-functional use as the *iyara* in orowa and rooming houses. Furthermore, none of these spaces belong to houses that have shared/communal spaces with other families, where limitations in exclusive occupation would justify such a use. Therefore, the analysis also looked at what factors contributed to a culinary footprint to the bedroom and garage, and the circumstances in which they would occur.

Five culinary-mapped spaces were selected to ascertain the rank order of integration, namely, the living room, the dining room, the kitchen, the bedroom, and the backyard. In previous chapters, the orowa, backyard, outside and iyara were used, however, in the modern house, the activities of the orowa are distributed over the living room, dining room and kitchen, and the activities of the iyara are distributed over the living room, dining room and the bedroom.

The rank order of integration was assessed for the houses using the living room, the dining room, the kitchen, the backyard and the bedroom, and it found nine different patterns of rank order out of a possible *15,120* patterns in permutation (9P5). The rank orders are as follows:

1. Backyard > Living room > Dining > Kitchen > Bedroom: 2 houses
2. Backyard > Living room > Kitchen > Bedroom > Dining: 1 house
3. Backyard > Living room > Bedroom > Dining > Kitchen: 2 houses
4. Backyard > Living room > Dining > Bedroom > Kitchen: 2 houses
5. Living room = Dining > Backyard > Kitchen > Bedroom: 4 houses
6. Living room > Dining > Kitchen > Backyard > Bedroom: 4 houses
7. Living room > Dining> Kitchen > Bedroom > Backyard: 5 houses
8. Living room > Dining > Bedroom > Backyard > Kitchen: 4 houses
9. Living room > Dining > Bedroom > Kitchen > Backyard: 1 houses

The first seven houses in Groups 1 to 4 above had the outside space as more integrated than internal spaces. These seven houses (House 51, 52, 64, 65, 66, 71 & 72) also had entrance hallways separating the living areas from the sleeping areas, and had four to five different entrance or exit doors from the outside space, with links to the front entrance, kitchen, bedroom wing, living room terrace and garage. The other eighteen houses had the living and dining room more integrated than the backyard, kitchen or bedroom. With the exception of Houses 55 & 56, all these houses did not have an entrance hall to separate living and sleeping areas into distinct wings. Thirteen of the eighteen have three connections to outside space, i.e. from the front entrance, the kitchen and the garage or car-porch.

As such, two distinct genotypes were identified as follows:

- The integrated exterior genotype with a transition space distributing accessibility to the house, and with direct exterior access to the bedroom wing.

- The integrated living room genotype, with a functional space controlling and distributing accessibility to the house, but with no direct exterior access to the bedroom wing.

Fig 7.9: Two genotypes of houses in terms of front and bedroom wing access

Using the same calculations in which the spaces in first, second or third position in the rank order were multiplied first place by one, second place by two and so on, the comparison had an empirical number in which the lower sum had the more integrated ranking as follows in Table 7.6 below:

	Living Room		**Dining room**		**Kitchen**		**Bedroom**		**Backyard**	
	No of spaces	**Multiple**	No of space	**Multiple**	No of spaces	**Multiple**	No of spaces	**Multiple**	No of spaces	**Multiple**
First	19	**19**	5	**5**					6	**6**
Second	6	**12**	14	**28**						
Third			4	**12**	10	**30**	7	**21**	4	**12**
Fourth			1	**4**	8	**32**	8	**32**	8	**32**
Fifth			1	**5**	7	**5**	10	**50**	7	**35**
Total		**31**		**54**		**97**		**103**		**85**

Table 7.6: Comparative Integration position of culinary mapped spaces

The patterns showed that across the sample, the living room was most integrated space of the four spaces, and it was ranked in the first position in eighteen houses and second in seven houses. The dining room was the second most integrated space and it was either in the same convex space or just one step from the living room. The third most integrated space was the backyard, followed by the kitchen, and then the bedroom ranked as most segregated.

From this calculation, this meant that the comparative rank order of integration for twenty-five houses is: Living room (1.24) > Dining (2.16) > Backyard (3.4) > Kitchen (3.88) > Bedroom (4.12).

Therefore overall, the living room and dining room was more integrated than the backyard, and kitchen is more integrated than the bedroom.

The mean integration ranged from 0.731 to 1.120, which meant that in comparison to rooming and orowa houses, modern houses were shallower and "ringier" on average to other spaces in the system (See Table 7.7 below).

Table 7.7 – Mean integration range for three housetypes

House Type	Mean integration range
Orowa	0.850 – 6.11
Rooming	0.850 – 2.015
Modern	0.731 – 1.120

The results also showed an increase in the percentage ratio of integrated to segregated convex spaces from orowa and rooming houses to modern houses as summarised in the table 7.8 below:

Table7.8 – Ratio of integration to segregated spaces

No % of integrated spaces	Orowa House	Rooming House	Modern House	**Total**
> 10%	7	9		**16**
10 – 20%	13	20	6	**39**
20 – 30 %		1	16	**17**
30 – 40 %			3	**3**
Total	**20**	**30**	**25**	**75**

The mean ratio of the number of integrated spaces to segregated spaces in modern houses is 0.308. In rooming houses, the ratio is 0.140, and in orowa houses, the ratio is 0.137. This meant that on average, 3/10 spaces were integrated in modern houses whereas only 1/10 were integrated in rooming and orowa houses. The suggests that in the modern house, the integrated spaces do not have the degree of control of connectivity over other spaces that the orowa and backyard have in the orowa and rooming houses, as it is possible to bypass the integrated spaces to some other segregated spaces in modern houses whereas it is almost not possible in orowa and rooming houses.

Depth and distributedness.

Table 7.9 compares the range of total and mean step depth values for the three housetypes.

House type	Total Depth	Mean Depth range
Orowa	4 – 7	0.830 – 3.810
Rooming	5 – 11	2.900 – 6.100
Modern	5 – 8	2.68 – 4.230

From the table, orowa houses had the lowest depth and mean depth, followed by modern houses and then by rooming houses. The mean depth range was smallest in modern houses (1.55), followed by orowa houses (2.98) and the rooming house (3.2). This means that there is less than two mean depths difference between the shallowest and deepest modern house.

Table 7.10 compares the step depth of culinary mapped space in the modern house

HOUSE NO	TOTAL DEPTH	LIVING RM	DINING RM	KITCHEN	BEDROOM
51	7	3	3	4	6
52	7	3	3	4	6
53	5	2	2	3	4
54	6	2	2	3	4
55	7	4	4	2	6.5
56	7	4	4	2	6.5
57	8	2	3	2	7
58	8	2	3	2	7
59	6	3	3	4	5.5
60	6	3	3	4	5.5
61	6	2	3	2	5.5
62	6	2	3	2	5.5
63	6	2	3	2	5.5
64	6	3	4	3	4
65	6	3	4	3	5
66	6	3	4	3	5
67	6	2	2	3	5
68	6	2	3	3	5
69	6	2	3	3	5
70	6	2	3	3	5
71	5	3	4	3	5
72	5	3	4	3	5
73	7	3	3	3	6
74	7	3	3	3	6
75	6	2	2	3	4
SUM	**157**	**65**	**78**	**72**	**134.5**
Mean	6.28	2.6	3.12	2.88	5.38

From table 7.4, the deepest space in modern houses ranged from five steps to seven steps from the front door. The results also showed that the living room, dining room and kitchen ranged from two to four steps, and the bedroom ranged from four to seven steps, making the bedrooms deepest overall, as seen in the table 7.10 above. The results indicate that overall, as in the rank order of integration, the living room is the shallowest space and the bedroom is the deepest. However there is a reversal of the order between the dining

room and the kitchen, with the kitchen ranking shallower than the dining room as the kitchens always have a direct exit door to the grounds whereas the dining room is either a type A or B space leading to the kitchen and living room. The kitchen is also shallower than the living room in only two houses (Houses 55, 56), which also have the least integrated living room in the sample (see Table 7.5). The mean also showed a huge gap in depth between the living spaces (living room, dining and kitchen) and the bedroom, with the latter being almost twice the step depth of the former whereas, in orowa and rooming houses, the gap between the orowa and iyara, and the hall and room was much closer as in Table 7.11 below.

	Orowa/ Hall / Living Room	Kitchen	Iyara/ Room/ Bedroom
Orowa house	2.10	3.90	3.05
Rooming house	2.10	3.808	3.5
Modern house	2.6	2.88	5.38

Table 7.11: Comparison of step depth according to space labels

The results showed that orowa and rooming houses had a more compact distribution of step depth of spaces whereas, the modern house was more dispersed. This reflects the multi-functional nature of the iyara and room in orowa and rooming houses whereby it served as a living room, bedroom and storage space, but the depth of modern bedroom reflected its function as a space to be set apart for sleeping.

Distributedness

The modern houses had at least two access doors i.e. to the front door and to the kitchen door, and as many as five leading to the front door, kitchen, living room veranda, bedroom wing and the garage. The multiple links with external spaces make these houses very ringy and shallow as seen in the following table of distributedness of spaces (See Table 7.12):

Connection	House Nos	Total
A, B, C	59, 60, 61, 62, 63	5
A, C, D	51, 52, 71, 72	4
A, B, C, D	53, 54, 55, 56, 57, 58, 64, 65, 66, 67, 68, 69, 70, 73, 74, 75	16

Table 7.12: Distributedness of modern houses

The table shows that all modern houses have a type C space (on a single ring), particularly with external spaces, due to the multiple access doors. Incidentally, only eight houses have an internal ring as well. In Houses 51 & 52, the internal ring links the entrance foyer to the living room and dining room; in Houses 53, 54, 56 & 56, the internal ring links the entrance hall, living room, kitchen and courtyard; and in Houses 73 & 74, the internal ring links the living room, study and bedroom corridor. This means that in the other seventeen houses, once the external doors are closed, all spaces are actually type A and B (i.e. terminal and sequence spaces). The main bedroom in Houses 68, 69 & 70 have en-suite bathrooms and are type B spaces and the main bedroom in Houses 51 & 52 have an inter- communicating door with the study & House 64 main bedroom has an inter-communicating door with the children's bedroom and are type C spaces. The comparison between all housetypes is as in Fig 7.10.

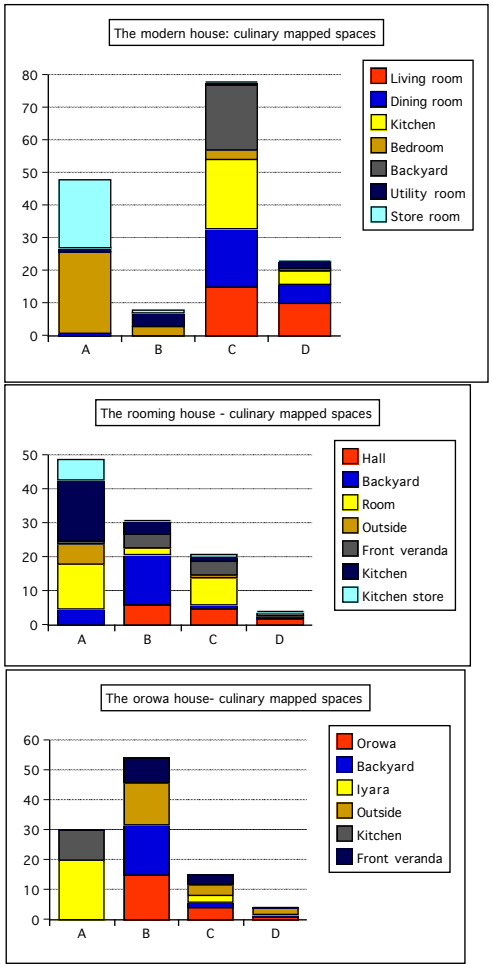


Fig 7.10: The comparative chart of type A,B,C & D spaces in the three housetypes

The chart shows that the culinary-mapped living spaces in modern houses are mainly type C and D spaces, and the bedrooms were mainly terminal spaces (type A); and type B spaces were fewest. So whilst orowa houses had through-circulation spaces, rooming houses had terminal spaces, the modern house had ring spaces. However, when the graph was drawn minus all external spaces, the houses were constituted of more type A and B spaces with a fewer type C spaces. For instance, the living room was a type B space in seventeen houses, and type C in eight houses – Houses 51, 52, 53, 54, 55, 56, 73 & 74. Likewise, the dining room was a type C space in six houses - Houses 51, 52, 53, 54, 55, 56; a type A space in House 67, and type B spaces in the remaining sixteen houses. All the kitchens were all type B spaces, as they all led to a kitchen store.

Table 7.13 below summarises the percentage of convex spaces used for culinary-related activity in relation to the gross number of convex spaces. The results showed that 84% of the modern house (21/25) had up to 30% of all spaces as culinary mapped. As in Chapter 6 & 7 on orowa and rooming houses, by comparing these figures to the net percentage of culinary spaces accessible to an individual household, the results show that the percentage coverage of culinary footprints is highest in orowa houses and it significantly reduces in coverage from rooming houses to modern houses.

Percentage range	Orowa house (20)	Rooming House (30)	Modern House (25)	**Total (50)**
10 – 20%		2	**5**	**7**
21 - 30%		6	**16**	**22**
31 - 40%		10	**3**	**7**
41 – 50 %	4	9	**1**	**7**
51 – 60 %	4	3		**3**
61 – 70 %	2			**3**
71 – 80 %	4			
81 – 90 %	4			**1**
91 – 100%	2			

Table 7.13 – Comparison of percentage of culinary mapped spaces

The analysis suggests that culinary-related activity and storage has a reduced presence in modern houses in comparison to orowa houses. In a sense, when spaces are multi-purpose, there is a tendency for culinary-related activity to take place there, but conversely as spaces become designated or classified for specific uses, there is a tendency for activities that could erstwhile have been carried out in neutral spaces to then gravitate towards the

classified space. Therefore, the next question will be how well culinary related activity and storage maintain the integrity of the boundaries of the kitchen and ancillary spaces.

The percentage ratio of culinary mapped spaces ranged from 14.3% in House 61 to 42.9% in House 62. An interesting fact is that both houses had identical floor plans, and whilst one household used only the kitchen, kitchen store and dining room for culinary-related activity and storage, the other used additional spaces such as the bedroom, living room, and study as well. The same goes for Houses 71 and 72 (20% and 40% respectively); Houses 73 and 74 (20% and 24%); Houses 57 & 58 (28.6% and 26.3%) and so on. Modern houses are self-contained houses with convenience and service facilities, but occupiers choose to employ more spaces into activities beyond that implied by their space labels and designation.

Fig 7.11 showing activity mapping on identical floor plans: Houses 71 & 72.

The results showed that ten houses out of twenty-five used spaces such as the garage and bedroom for storage of culinary-related utensils and food, hence the extension of boundaries of the kitchen, and impingement on other spaces beyond the cooking space.

ACTIVITIES AND STORAGE PATTERNS IN THE USE OF CULINARY-MAPPED SPACES

The following table 7.14 shows the frequency distribution of activities, and the storage of food and utensils in the culinary-mapped spaces.

Modern Houses	ACTIVITY			UTENSILS			FOOD		Total
	Eating	Cooking/ foodprep.	Dish-washing	Implements		Facilities	Raw / Uncooked	Trans-formed	
				Manual	Electronic				
Living/ Dining	25				5	9	9	6	**54**
Bedroom	6						4	8	**18**
Kitchen	1	25	24	20	20	21	24	23	**161**
Backyard/ Court-yard		20	2	3					**25**
Store/ Garage/ Utility Room				9	5	6	22	8	**50**
Total	**32**	**45**	**26**	**32**	**33**	**36**	**59**	**45**	**308**

The detailed table indicating house numbers can be found in Appendix Four.

The table recorded three hundred and eight responses, in comparison to two hundred and eighty-five for rooming houses and one hundred and ninety-three for orowa houses. As expected, the majority of culinary footprints (culinary activity, facilities, utensils and food) were found in the kitchen, accounting for fifty-three percent of the responses. From the table, main cooking takes place in the kitchen, and eating takes place in the living/dining room in all twenty-five houses. The bedroom in the modern house had eighteen responses, which has the lowest frequency, mainly for eating and for food storage. This is in contrast to the *iyara* in the orowa and rooming houses, which have the highest frequency of culinary-related use, for almost all kinds of culinary activities and storage except for dishwashing. The distribution will be discussed in detail below.

The table shows that even though manual implements (mortar, pestle, grinding-stone etc) and electronic appliances (blender, mixer, kettles etc) were kept in the kitchen, more respondents stored the delicate electronic appliances in the living/dining room or utility room, and in contrast, the hardy strong traditional implements was stored in the backyard, courtyard, store room and garage.

From Table 7.14, raw or uncooked foods were either kept in baskets or racks in the kitchen, in sacks in the store or garage, or refrigerated or frozen in the fridge/freezer in the

kitchen, utility room or dining room. 'Transformed' foods include cooked stews and foods and processed canned foods, and they were refrigerated. The table also showed that four respondent households stored uncooked foods (rice, grains) and eight households stored canned foods in the bedroom (Note: *House 54 is duplicate, so eleven households stored foods in bedroom*. Control against wastage by children and theft by house-help was cited as the reason for storing foods in the bedroom, though most households felt that such practices could attract vermin, such that of the eleven households who stored foods in the bedroom only three of them would also eat there.

Storage of implements and facilities

Table 7.15 below shows the spatial distribution for the storage of utensils in terms of manual and electronic implements, and facilities.

	IMPLEMENTS				**FACILITIES**			
	Cooking utensils	Mortar/ grinding stone	Electrical appliance	Ceremonial cooking utensils	Stoves/ hearth	Fridge/ freezer	Wells/ Taps	**Total**
Living/ Dining			5			9		**14**
Kitchen	25	19	23	2	25	21	25	**140**
Bedroom	3							**3**
Backyard/ Courtyard		4		1				**5**
Kitchen store	25	7	4	9			2	**47**
Kitchen terrace	2	5			2			**9**
Utility room		2	5	5		6		**18**
Garage				1				**1**
Boys Quarters				9				**9**
	55	**37**	**37**	**27**	**27**	**36**	**27**	**246**

The detailed table indicating house numbers is in Appendix Five.

From the above table, twenty-five modern households had two hundred and nineteen implements and facilities in nine spaces. This gave an item/house ratio of 9.84 (i.e. 246 items divided by 25 households), in contrast to rooming houses with a ratio of 6.1 (183 items divided by 30 households), and orowa houses with a ratio of 7.25 (145 items divided by 20 households). This means that modern households have a higher storage intensity

(i.e. store more items per house) than the orowa or rooming house, to the extent that the gap between the orowa and rooming house of 0.88 (i.e. 4.53 minus 3.65) is small compared to that between rooming and modern houses of 4.23 (i.e. 8.73 minus 4.53).

Fifty two percent of items are found in the kitchen, followed by twenty-one percent in the kitchen store, eight percent in the utility room and 6.39% in the living room. Other storage patterns that stand out include the use of the 'boy's quarters' for ceremonial cooking utensils and the use of the bedroom for keeping electronic appliances. Actually, the appliances in these bedrooms were the electric knife and a cake maker, which were only used on special occasions.

Electronic implements such as sandwich makers, toasters and coffee makers, and facilities such as microwave ovens, fridges, and in particular chest freezers were found in the dining area because the kitchens were designed to accommodate only one full height fridge, alongside the gas or electric cooker range, sink, worktop and cabinets. There was no space for a chest freezer. In the eighties, households bought foods like meats, fish, grains and cereals in bulk, sometimes for as much as six months supply. The limited storage capacity of the freezer drawer of an upright fridge necessitated additional long-term refrigeration space, and this resulted in the purchase of a chest freezer for storing up to "half-a-cow" of beef, cartons of frozen fish, or a basket full of red peppers bought in season. Usually, the women pooled together to make these purchases, however, at the time of the fieldwork, irregular electricity power supply for up to five to six weeks at times had resulted in food thawing and refreezing erratically thereby spoiling the food. This prompted households to reduce the quantity of foods people stored. Furthermore, government fiscal policies reduced people's disposable income to the extent that pooling required a lot more people to join in, thereby reducing the quantities allocated per share. This also meant that households had to shop for most foodstuff in smaller quantities and more frequently than before.

The microwave oven was seen as a status object in the mid 1990s and even when there may been space for it in the kitchen, most households preferred to keep it in the dining room. In any case, it was mainly used to re-heat already cooked foods as opposed to cooking by microwave technology.

Storage of Food

Summary table 7.16: Storage for food. *The detailed data table may be found in Appendix Five*

		STORAGE VESSELS		STORAGE SPACES		
	Eaten immediately	Kitchen cupboard/rack	Fridge/ Freezer	Kitchen	Store, pantry, loft	Bedroom
RAW						
Perishables (25)			25			
Ingredients (25)			1	18	6	
Tubers (25)		9			15	
Grains/ Cereals (5)		5	1		16	3
Fruits (24)	3	7	11		3	
Vegetables (24)			21	2		
TRANSFORMED						
Cooked foods (25)		2	22		1	
Canned foods (24)		9	1		7	7
Total	**3**	**32**	**82**	**20**	**48**	**10**

The results show that the one hundred and ninety-five (195) food items types were stored in five vessels and spaces, giving an item/house ratio of 7.8, in comparison to item/house ratio of rooming houses of 7.23 (215 items in 30 houses). The fridge is the most used storage receptacle in the home, and the kitchen store is the most used storage space, even more than the kitchen. The bedroom is used for storage of canned foods and packets of rice in ten (10) instances.

Table 7.18 showed that the more expensive and status foods like canned foods, tubers and grains were stored in more segregated spaces (i.e. storeroom and bedroom) relative to the kitchen, and presumably with the need to control access to it. By contrast, fruits, vegetables and ingredients such as peppers, salts and spices are kept in place of unrestricted accessibility, and this is also demonstrated in the step distance calculations summarised in the table 7.24 below:

ACTIVITIES AND STORAGE PATTERNS IN CULINARY-MAPPED SPACES IN MODERN HOUSES

Table 7.17 maps the distribution of activities and storage in the culinary mapped spaces.

Table 7.17 MODERN HOUSE

House No	LIVING RM	DINING RM	KITCHEN	BEDROOM	BACKYARD	UTILITY ROOM	STORE ROOM
C51		EATING	COOKING		CEREMONIAL COOKING	FRIDGE/FREEZER	FOOD STORAGE
			DISHWASHING				
			FOOD PROCESSING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
C52		EATING	COOKING	EATING	CEREMONIAL COOKING		FOOD STORAGE
			DISHWASHING				
			FOOD PROCESSING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C53		EATING	COOKING		FOOD PROCESSING	IMPLEMENT STORAGE	IMPLEMENT STORAGE
		IMPLEMENT STORAGE	DISHWASHING		CEREMONIAL COOKING		FOOD STORAGE
		FOOD STORAGE	IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C54		EATING	COOKING	FOOD STORAGE	CEREMONIAL COOKING	FRIDGE/FREEZER	FOOD STORAGE
			DISHWASHING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
C55		EATING	COOKING	EATING	FOOD PROCESSING	FOOD STORAGE	
			DISHWASHING	FOOD STORAGE	CEREMONIAL COOKING	FRIDGE/FREEZER	
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C56		EATING	COOKING	EATING	FOOD PROCESSING	FOOD STORAGE	
		IMPLEMENT STORAGE	DISHWASHING		CEREMONIAL COOKING	FRIDGE/FREEZER	
			EATING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C57	EATING	EATING	COOKING	FOOD STORAGE	FOOD PROCESSING		IMPLEMENT STORAGE
		IMPLEMENT STORAGE	DISHWASHING		CEREMONIAL COOKING		
		FOOD STORAGE	IMPLEMENT STORAGE				
		FRIDGE/FREEZER	FOOD STORAGE				
			FRIDGE/FREEZER				
C58		EATING	COOKING	EATING	CEREMONIAL COOKING		FOOD STORAGE
			DISHWASHING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C59		EATING	COOKING		CEREMONIAL COOKING		IMPLEMENT STORAGE
			DISHWASHING				FOOD STORAGE
			FOOD PROCESSING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C60		EATING	COOKING		CEREMONIAL COOKING		IMPLEMENT STORAGE
			DISHWASHING				FOOD STORAGE
			FOOD PROCESSING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C61		EATING	COOKING				IMPLEMENT STORAGE
		FRIDGE/FREEZER	DISHWASHING				FOOD STORAGE
			CEREMONIAL COOKING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C62	EATING	EATING	COOKING	FOOD STORAGE	CEREMONIAL COOKING		IMPLEMENT STORAGE
		FRIDGE/FREEZER	DISHWASHING				FOOD STORAGE
			FOOD PROCESSING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C63	EATING	EATING	COOKING	EATING			FOOD STORAGE
		IMPLEMENT STORAGE	DISHWASHING				
		FOOD STORAGE	FOOD PROCESSING				
			CEREMONIAL COOKING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C64	EATING	EATING	COOKING	EATING	CEREMONIAL COOKING		IMPLEMENT STORAGE
		FRIDGE/FREEZER	FOOD PROCESSING	FOOD STORAGE	DISHWASHING		FOOD STORAGE
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				

Table 7.17			MODERN HOUSE				
House No	LIVING RM	DINING RM	KITCHEN	BEDROOM	BACKYARD	UTILITY ROOM	STORE ROOM
C65	EATING	EATING	COOKING		FOOD PROCESSING	IMPLEMENT STORAGE	FOOD STORAGE
		FOOD STORAGE	DISHWASHING		CEREMONIAL COOKING		
		FRIDGE/FREEZER	IMPLEMENT STORAGE				
			FOOD STORAGE				
C66	EATING	EATING	COOKING		FOOD PROCESSING		FOOD STORAGE
		FRIDGE/FREEZER	DISHWASHING		CEREMONIAL COOKING		
		IMPLEMENT STORAGE	EATING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
C67	EATING	EATING	COOKING		CEREMONIAL COOKING		FOOD STORAGE
		IMPLEMENT STORAGE	DISHWASHING				
		FOOD STORAGE	EATING				
		FRIDGE/FREEZER	IMPLEMENT STORAGE				
			FOOD STORAGE				
C68	EATING	EATING	COOKING	FOOD STORAGE	CEREMONIAL COOKING		FOOD STORAGE
		IMPLEMENT STORAGE	DISHWASHING		FOOD PROCESSING		
		FOOD STORAGE	IMPLEMENT STORAGE				
		FRIDGE/FREEZER	FOOD STORAGE				
			FRIDGE/FREEZER				
C69	EATING	EATING	COOKING		CEREMONIAL COOKING	FOOD STORAGE	IMPLEMENT STORAGE
			DISHWASHING		FOOD PROCESSING		FOOD STORAGE
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C70	EATING	EATING	COOKING	IMPLEMENT STORAGE	CEREMONIAL COOKING		IMPLEMENT STORAGE
			DISHWASHING		FOOD PROCESSING		FOOD STORAGE
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C71	EATING	EATING	COOKING		CEREMONIAL COOKING		IMPLEMENT STORAGE
		FOOD STORAGE	DISHWASHING		FOOD PROCESSING		
		FRIDGE/FREEZER	EATING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C72	EATING	EATING	COOKING	EATING	DISHWASHING	IMPLEMENT STORAGE	FOOD STORAGE
		FOOD STORAGE	DISHWASHING	FOOD STORAGE	CEREMONIAL COOKING		
		FRIDGE/FREEZER	EATING				
			FOOD PROCESSING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C73		EATING	COOKING		CEREMONIAL COOKING	IMPLEMENT STORAGE	FOOD STORAGE
			DISHWASHING			FOOD STORAGE	
			EATING			FRIDGE/FREEZER	
			IMPLEMENT STORAGE				
			FOOD STORAGE				
C74	EATING	EATING	COOKING		CEREMONIAL COOKING	IMPLEMENT STORAGE	FOOD STORAGE
			DISHWASHING			FOOD STORAGE	
			FOOD PROCESSING			FRIDGE/FREEZER	
			IMPLEMENT STORAGE				
			FOOD STORAGE				
C75		EATING	COOKING	IMPLEMENT STORAGE	CEREMONIAL COOKING	IMPLEMENT STORAGE	IMPLEMENT STORAGE
		FRIDGE/FREEZER	DISHWASHING	FOOD STORAGE	FOOD PROCESSING		FOOD STORAGE
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				

From Table 7.17 above, the basic daily activities, cooking, eating and dishwashing, predominantly took place in the kitchen, dining room and kitchen respectively, and the occasional optional activities, foodprocessing and ceremonial cooking took place in the kitchen and or backyard. As such, the following observations can be made:

- Cooking and dishwashing are spatially co-present in the kitchen.
- Ceremonial cooking and foodprocessing are spatially co-present in the backyard.
- Eating and the storage of electronic appliances takes place in the dining room.
- Six of the nine houses that had microwave ovens kept and used it in the dining room, mainly for re-heating home cooked food.
- No eating takes place in the backyard

- No daily cooking takes place in any other space besides the kitchen
- Dishwashing only takes place in the kitchen and backyard
- Only two households perform ceremonial cooking in the kitchen
- Foodprocessing is almost evenly distributed in the kitchen and the backyard
- With regards to the integrity of the culinary activity and storage within the kitchen boundary, House 61 ranks strongest because it uses only the kitchen and dining room for the five activities, and House 72 ranks weakest as it uses all five spaces.

As stated in previous chapters, the main house is regarded to be of higher status than the backyard and outhouses. Likewise, the locus of eating tends to correspond to spaces of higher status, and the locus of dishwashing tends to correspond to spaces of lower status, with cooking being in between.

With respect to the space-activity matrix in Table 7.17, eating takes place in the dining room in all twenty-five houses, and in the living room in fourteen houses, particularly in front of the television. Nine of the houses who do not eat in the living room have a combined living/dining room and have visual continuity of television from the dining table. Six households also ate in the kitchen, though only one of them (House 73) had a breakfast bar in the kitchen. None of the other five had a kitchen table but only had the low stool, which suggests that eating here for was perhaps for informal meals and snacks, though, in the Houses 70 & 71, the housemaids have their main meals in the kitchen, as they were not permitted by the mistress of the house to use the dining table. Six households felt that eating was permitted in the bedroom only in the event of illness. Essentially, the results show that eating migrates upwards from the dining room to the living room, a more integrated space and arguably, a higher status space in thirteen households, and downwards to the kitchen, a more segregated space and lower status space in six households, and further downwards to the bedroom, an increasingly more segregated space in seven households, albeit with the caveats of illness.

Even though cooking is firmly located in the kitchen, its ancillary spaces, i.e. kitchen terraces, kitchen courtyard, storerooms and utility rooms was also used for food preparation activities. Several households simultaneously used more than one type of cooking range, i.e. a gas range with oven (usually provided by the university), an electric stove, a coal pot, a kerosene stove and a firewood range. The choice depended on what foods are being cooked, and some foods that emit strong smells and fumes were

sometimes prepared on the kitchen veranda or courtyard, using the coal pot or kerosene stove. In addition, activities like sifting flour, pounding yam, using the grinding stone etc may also take place in the utility spaces and veranda. With the exception of the utility room, these are neither backyard spaces, nor are they indoor spaces, but are either covered open spaces (verandas), or open enclosed spaces (courtyards), which allow for natural ventilation. As such, even within the 'kitchen complex', there is a hierarchy of spaces. The analysis on the layout of the kitchens is presented below.

Dishwashing took place in the kitchen in twenty-four houses, and next to the reservoir tank in the twenty-fifth house (House 64) because of a perennial plumbing problem. House 72 also used the reservoir tank to wash pots that were too large for the kitchen sink, because they regularly prepared meals in bulk and had to use oversize pots and pans. Unlike orowa and most rooming houses with no water supply, plumbing or drainage facilities in the kitchen made dishwashing to be co-spatially compatible with cooking in the modern house kitchen. In this cases as in Houses 64 & 72, it can be said that dishwashing migrates to the backyard, a lower ranked space.

Foodprocessing took place outdoors in eleven houses, and in the kitchen in nine houses. Opinion was divided as to which location was best. Those who used outdoor spaces cited the messiness of the process as being the reason not to use the kitchen, and those who used the kitchen cited hygiene as the factor and argued that it was almost impossible to prevent houseflies from landing on and contaminating foods processed outdoors.

In terms of ceremonial cooking, twenty households used the backyard, two households used the kitchen, two households hired contract caterers who prepared the food elsewhere, but could also use the backyard, and the last remaining respondent was a young family and said they had not had the instance to prepare for a large party to state where they would use. All houses had grassed lawns and firewood fires caused considerable damage to the grass, but several respondents felt the trade-off was justifiable as these ceremonies were an one-off occurrences, and hosting a very good party was preferred to having a well-manicured lawn. Ceremonial cooking also allowed female folk to show solidarity and support for each other, even if their roles was to ensure the hired cooks did not pilfer the utensils and food. Respondents were asked to indicate which part of the grounds was used for ceremonial cooking, and it was found that it relates to the orientation of the house to the road, the location of the indoor kitchen and the location of

the most convenient external source of water between the Boy's Quarters and the reservoir tank, and the storage space for bulky ceremonial cooking utensils. The results of the spatial analysis on ceremonial cooking will be presented in the section dealing with the use of outdoor space below.

The next set of analysis measured the step distance of eating, foodprocessing, dishwashing and ceremonial cooking from the cooking space. This gave an empirical measure of how close to the cooking space these activities occur and how much integrity or weakness they contribute to the boundary of the kitchen. *The detailed data table for each house can be found in Appendix Five.*

Table 7.18: Summary table of the step distance of activities from the cooking space:

House No	Eating	Dishwashing	Foodprocessing	Ceremonial cooking	Average step distance
Range	2.00	1.00	2.00	4.00	1.33
Maximum	2.50	1.00	2.00	4.00	1.33
Minimum	0.50	0.00	0.00	0.00	0.00
Mean	**1.48**	**0.08**	**0.84**	**1.84**	**0.90**

The results show the distance from the cooking space as follows:
Dishwashing < Foodprocessing < Eating < Ceremonial cooking.
The average step distance for activities is 0.90, which is less than one full step away from the cooking space.

Table 7.19 below shows the distribution of co-spatial activities in the kitchen:

	Activities in the kitchen	Total
1	Cooking and dishwashing only	10
2	Cooking, dishwashing and food processing	6
3	Cooking, dishwashing and eating	5
4	Cooking, dishwashing, ceremonial cooking	1
5	Cooking, dishwashing, foodprocessing, ceremonial cooking	1
6	Cooking, foodprocessing	1
7	Cooking, dishwashing, eating and foodprocessing	1

The results show that each one of the five activities take place in the kitchen of at least one house. Therefore, out a possible thirty-one possible combinations for five activities in one space (5C1 + 5C2 + 5C3 + 5C4 + 5C5 = 31), seven of them were found, with cooking and

dishwashing most compatible, and in combination with one or two of the others taking place there. No household does all the five activities in the kitchen, and the maximum space use are in Houses 63 & 72, with four of the five. House 63 excludes eating, and House 72 excludes ceremonial cooking from the kitchen.

Having established that culinary activity does not necessarily conform to the boundaries of designated space labels, the next section will examine the pattern of storage of food and utensils._The step distance between the place of retrieval of items and place of work is measured and presented in the following table:

Table 7.20: Summary table of step distance of utensils from the cooking space.

House	Mortar etc	Cooking utensils	Electrical appliance	Fridge/ Freezer	Average step distance
Range	3.00	1.00	4.00	2.00	1.50
Maximum	3.00	1.00	4.00	2.00	1.50
Minimum	0	0	0	0	0
Mean total	**0.6**	**0.1**	**0.7**	**0.6**	**0.482**

(Please note that the full data table for each house can be found in Appendix Six).

The results show that on average, cooking utensils are stored closest to the cooking space, and also the mortar and grinding stone, and the fridge/freezer are step-equidistant from the cooking space. Electrical appliances also lie on average within one step but it is the most distant. This is summarised as follows:
Cooking utensils < Mortar/grinding stone = Fridge/freezer < Electrical appliance.

The total average step distance for utensils is 0.482, which is less than 0.90 for activities in modern house. This is also to be contrasted with the average total step distance of 1.411 for utensils in rooming houses and 1.271 in orowa houses as in the table below:

Table 7.21: Comparative table of step distance of utensils from the cooking space.

Housetype	Mortar	Cooking utensils	Electrical appliances	Fridge/ freezer	Average step distance
Orowa house	0.8	1.4	1.7	1.8	1.271
Rooming house	1.0	1.1	2.4	3.06	1.411
Modern house	0.6	0.1	0.7	0.6	0.482

The table showed an increase in step distance from orowa to rooming houses and a decrease from rooming to modern houses. Overall, the modern house has the strongest

boundary as all utensils are found within less than one step from the cooking space, whilst the others are more than one step away.

Table 7.22: Step Distance from the cooking space for the storage of food

	Perish ables	Ingred- ient	Tubers	Grains/ Cereals	Fruit/ Veg.	Cooked food	Canned foods	Total average
Minimum	0	0	0	0	0	0	0	0.143
Maximum	3	2	4	7	2	2	5	1.714
Range	3	2	4	7	2	2	5	1.571
Mean	**0.8**	**0.36**	**1.06**	**1.52**	**0.6**	**0.42**	**1.81**	**0.93**

The rank order of step distance from the cooking space from the nearest to the furtherest is: Ingredient < Cooked food < Fruit/vegetables < Perishables < Tubers < Grains/cereals < Canned foods.

This order is plausible as ingredients (salts and spices) are not likely to be consumed excessively as sugar will, and cooked foods are left-overs from previous meals, and fruit and vegetables are easily available and not likely to be restricted in consumption. Perishables like raw meats and fish, tubers and grains will have to be cooked as part of main meals, thereby curtailing their instant consumption, but cereals (cornflakes etc) and canned foods are 'ready-to-eat' processed and expensive foods, and therefore would be more restricted. As such, the status of foods is reflected in the way and place it is stored.

Table 7.23: Mean step distance for retrieval of items

Mean step distance between the storage and cooking space for all houses			
FOOD	Orowa Houses	Rooming Houses	Modern Houses
Tubers	1.4	1.9	1.06
Grains and Cereals	1.6	1.89	1.52
Fruits and Vegetables	1.6	2.5	0.6
Ingredients	1.6	1.97	0.36
Perishables	1.7	3.11	0.8
Cooked foods	1.7	2.2	0.42
Canned foods	1.8	2.06	1.81
Total Mean	**1.612**	**2.21**	**0.930**

In comparison to the orowa and rooming houses, storage in the modern house for all foods is closer to the cooking space. The pattern shows that orowa houses hold the second position which a sense reflects the fact that as houses become shared by non-kin

households from the nuclear to extended to multiple families, the distance of food storage from the cooking space increases.

Table 7.24: Comparison of average step distance for orowa, rooming and modern houses

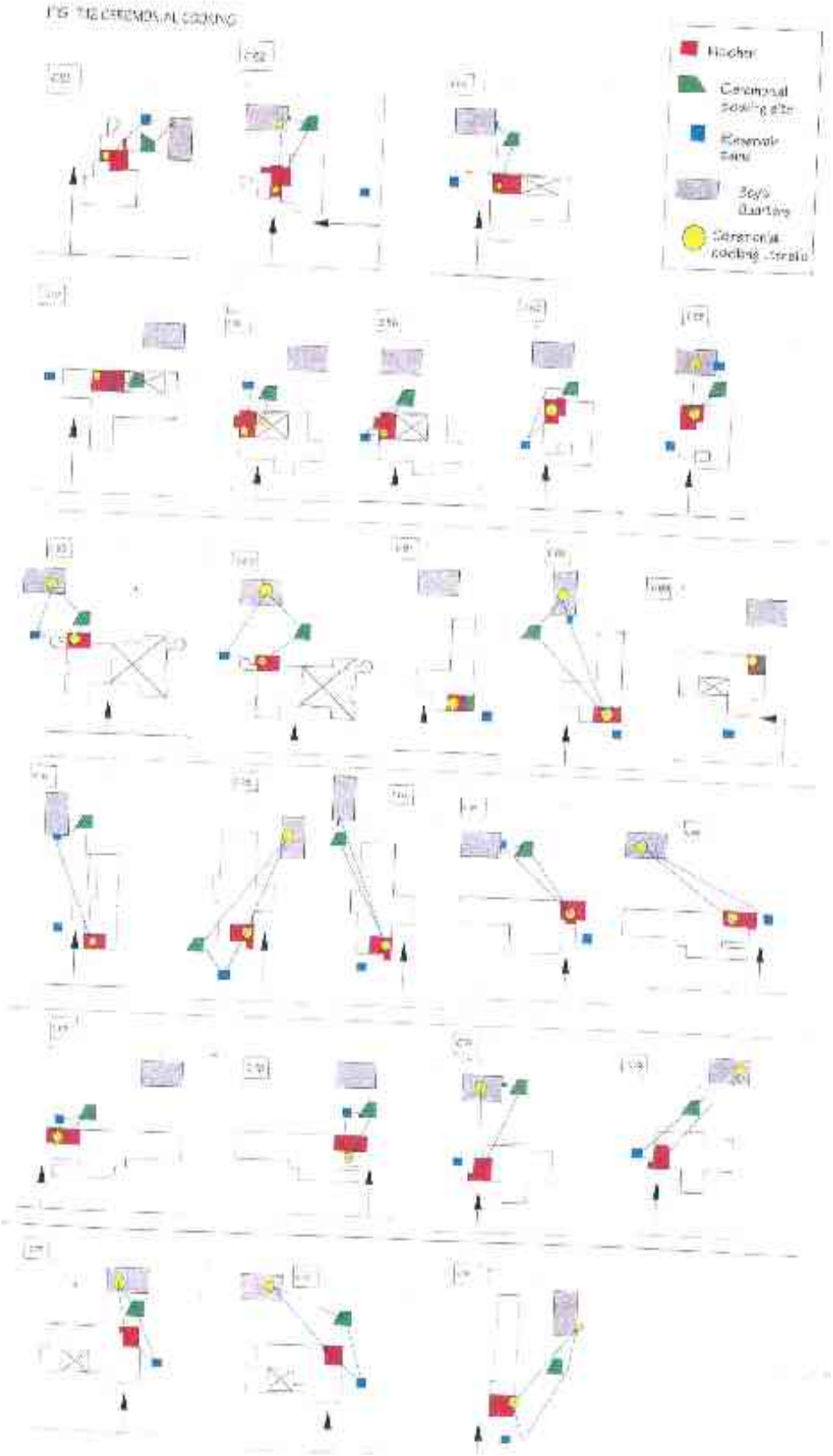
	Orowa houses	Rooming houses	Modern houses
Average step distance: Culinary Activity	1.604	1.68	0.90
Average step distance: Utensils	1.271	1.41	0.482
Average step distance: Food	1.612	2.21	0.930
Average step distance: Total	**1.486**	**1.95**	**0.844**

The above pattern is consistent with regards to all variables – activity, utensils and foods, and the modern kitchen has the strongest culinary boundary and the rooming house has the weakest. Therefore, cooking in the orowa house takes place in the most integrated space, and in a relatively segregated space in the modern house and in one of the most segregated spaces in the rooming house, it's footprints are most restricted in the modern house overall.

Ceremonial cooking

In this section, the articulation of outdoor space with regards to ceremonial cooking will be examined. Fig 7.11 below shows the layout of the kitchen, ceremonial cooking site and water tank for all twenty-five houses based on the responses from the fieldwork.

The location of the ceremonial cooking site is external and is on the deeper part of the site, and separated from the entrance drive by the house in twenty-one houses; located within the boundaries of the house in three houses – Houses 54, 61 & 63; and adjacent to the main road in one house – House 65. Items are retrieved from the BQ in eleven houses, and water is fetched from either the reservoir tank or the BQ tap.


Kosher
Ceremonial cooking site
Kosher sink
Boys Quarters
Ceremonial cooking utensils

It is a common practice for middle class women to employ cooks called "*a'la'se"* to prepare the foods, and have their other female friends and family members to oversee them, not in terms of their skills or ability to cook well, but rather to ensure that the food and utensils are not stolen by the *a'la'se*. These "supervisor-women" can therefore be present at varying intervals during the process, as they do not have an active role in the food preparation, so they sit around and talk until some other friend comes to take their place, such that almost in a continuous shift pattern, they ensure there is constant supervision all through the day. The people who remain there constantly will then be the cooks and the lower ranked household members who have to ensure these friends are comfortable, and run the errands. In this instance therefore, the cooks are of lower status, the lower ranked household members are in the middle and the supervisor-friends are of the higher status as they are considered to be on the same level as the mistress of the house, since they act on her behalf. For each woman, this overseeing role is reciprocated when they have their own celebrations, as their friends are expected to support them likewise. Each group have a unified goal to carry out the task commissioned to them by the mistress, either for a fee, for household pride or for reciprocity, and in that sense, each have a solidarity.

Role allocation and patterns of domestic hegemony

The results show that five categories of people are involved in culinary activity in modern households, namely mothers, daughters, maids, sons and fathers, and the choice of the main cook, and the secondary cook are found to be relate to a combination of gender, age seniority and status, and the household demographics. Depending on the available persons in the household, the role first goes to the female before the male, the mother before the children, the daughter before the son, and the mother before the daughter or maid, who can then take on the main role when they gain more experience and are considered competent to do so. The mother was the main cook in twenty-two households. She worked alone in four households (House 54, 64, 65 & 72), was assisted by her daughter/s in fifteen households, by the maid in two households (House 59 & 70), by her son in one household (House 73) and her husband in one household (House 61). The daughter was the main cook in House 55, and the maid was the main cook in Houses 59 & 70.

In terms of male involvement, the sons were the second cook in one household (House 73), and the third cook after the daughter, in seven households. The father was second cook in House 61, and the third in House 66. Incidentally, in both houses, the fathers' roles were to prepare pounded yam - *iyan*, which was a daily meal for Ekiti Yorubas. These men were married to non-Ekiti women, and they felt their wives did not have the skills to prepare the *iyan* the way they wanted it, so chose to made it themselves. These men prided themselves in being competent enough to prepare any food better than their wives, and 'modern' enough to participate in any activity involving food which was obviously female, and such that the father in House 61 considered that washing out and sterilising the baby's feeding bottle as involving as dishwashing or cooking. In any case, it is uncommon for middle class men to be involved in the kitchen activities because there was usually a number of people in the house to which the works could be delegated. In fact the older the family, the greater the tendency to have grown up children, to whom work may be delegated.

In terms of gender division of labour with regards to culinary activity, twenty of the twenty-five respondents felt that cooking was a joint responsibility and five felt it was an essentially female task. One of them said the daughters had to cook because the sons had to study, despite the fact that the daughter was in her fourth year in the university studying medicine, and the son was a first year political science student. Another felt that cooking was the responsibility of all members of the household except the father.

Table 7.25 below compares how roles were considered in terms of gender across the three housetypes in seventy-one of the seventy-five households:

	Orowa		Rooming		Modern		Total	
Female task	12	71%	14	48%	5	20%	31	44%
Both	5	29%	15	52%	20	80%	40	56%
Total	17		29		25		71	

The results showed an increase in culinary activity being considered a joint male/female activity from the traditional to the modern households and as one goes up the socio-economic strata. This could suggest that as women acquire western education similar to men, the social gap between them is reduced. This is to be distinguished from economic capability, as several of the market trader women in the Enuwa and Akarabata areas married to civil servant husbands make much more money than their spouses earn, but

they would consider the *alakowe* (learned) status of their husbands as being superior to theirs.

The same results were correlated against a socio-economic variable using the occupation of the head of the household to confirm if this gender split has elite undertones. In Chapter Three – Yoruba household and houseform, two categories of occupations were identified as: a/ manual, low skill, low income, worked in the informal sector and tended to be self-employed, and made up of farmers, traders, smiths and craft workers; and b/ educated, high skill, high income, employed in the formal sector, and made up of academicians, administrators, teachers, clerical workers, civil servants and medical personnel. The table below checked the response to gender roles against the level of education of the respondent households as follows:

Table 7.26: Gender role split according to socio-economic position

	Female	Both	Totals
Manual, low skill, low income, informal	24 (73%)	9 (27%)	33 (100%)
Educated, high skill, high income, formal	8 (21%)	31 (79%)	29 (100%)
Totals	32 (44%)	40 (56%)	72 (100%)

The table illustrated a clear shift in the viewpoint of male involvement in the kitchen from the manual to the educated households, implying an elitist ideal, which is not necessarily practised as the results show that cooking is still a predominantly female activity. Elite households are more able to afford domestic help if needed, so the men were hardly likely to find a situation where the responsibility for domestic work was going to pass to them, and which is all the more remarkable in the sense that almost twenty years ago, Oppong (1975) with respect to elite Akan families in Ghana, found little evidence of male involvement in domestic work.

In terms of roles according to age, the results are presented in the table 7.27 below:

	Orowa		Rooming		Modern		Total	
Parent's responsibility	0		1	3.6%	5	20.8%	6	9%
Adult/Teenage child	10	66.7%	17	60.7%	4	16.7%	31	46.3%
Both parent & child	5	33.3%	10	36.7%	15	62.5%	30	44.7%
Total	15		28		24		67	

The results show that in contrast to orowa and rooming houses, the adult/teenage child in the modern house was not considered to be solely responsible for cooking. It was considered a joint mother/child responsibility though in practice these children would have schoolwork, which would limit their involvement, such that it was up to the mother to ensure meals were prepared on time. Nevertheless, because the mothers were almost always employed by the university in similar working hours to their husbands, and were not likely to be home from work long enough to prepare the meals, several households' strategy was to prepare stews and soups on Saturdays and freeze them into small packs to be taken out everyday for consumption. This way, children can always have cooked meals when they return from school during the day whilst their mother was at work.

Likewise, this tendency was checked in relation to the occupation of the household head and the results are in the table and chart (frequency polygon) of weighted percentages below as follows:

Table 7.28 – Roles: Parent and Child according to social status

	Parent	Both	Child	Total
Manual, low skill, low income, informal	1 (3.2%)	10(32.3%)	20(64.5%)	31 (100%)
Educated, high skill, high income, formal	5(13.9%)	20(55.6%)	11 (30.5%)	36 (100%)
Totals	6 (9%)	30 (44.8%)	31(46.2%)	67 (100%)

From Table 7.28, there is a successive handing over from parent, to joint activity to child amongst the low-income earners but more educated parents participate in cooking than the non-educated, and less of their children are solely responsible for cooking, even though there were many households with teenage and adolescent children. Several of the older children will tend to be university students who either live in the hostels or are away on campus studying, clubbing etc, and are therefore not present at home to make sure food is ready for the mealtimes. So unlike the men in elite households, children find themselves exempt because their mothers consider it their responsibility to prepare meals for their husbands, and not their child's'.

So we find elite men being excluded from culinary work by virtue of traditional values because there is usually another person of lower status in the home to delegate work to; and elite children being excluded from culinary work to a greater extent than their age-mates in more traditional settings because of a nuclear family hegemony where a wife was

responsible for feeding her husband, and which cannot be delegated. Although, the more mundane tasks are most certain to pass on to them (elite children), their age-mates in more traditional settings will find themselves almost fully responsible for all domestic work, and even to some extent, food shopping, and are also more likely to be involved in the labour market in addition to their studying, because of their low income.

SUMMARY

In this chapter, the results have been compared with that of the previous housetypes and it can be seen that the spatial environment, i.e. exclusive versus shared; has a significant effect on domestic practices, because of the proximity of other households and the kind of solidary ties people share with them. The biological link between residents in orowa and modern houses support the use of integrated collective spaces like the orowa and living room for daily living activities, whereas, the co-resident tie between households in rooming houses has the effect of segregating people into their respective rented abodes where they can exercise control and exclude others.

Furthermore, drainage and plumbing has had the effect of bring in low status dishwashing into a higher status cooking space, and modern lifestyles such as television has had the effect of bringing eating from the dining room into the living room, a higher status and higher integration space.

VIII *Synthesis*

In this chapter, the original research questions are reviewed in the light of the analysis that has been carried out and it goes on to state how the subjects of the study – persons, activities, objects, food and space – have been employed to assess spatial boundaries, co-presence and permeability as it relates to status, solidarity and social mobility in domestic spaces. The synthesis also proposes ideas for describing how activities and storage patterns are distributed in space and the chapter then completes with a description of modes of status, solidarity and social mobility that are present in the domestic space and in relation to culinary related objects and activities.

INTRODUCTION

The purpose of this chapter is two-fold; first to present the findings in relation to the original research questions and then to take a broad look at the results in the context of the study and the field as a whole.

THE ORIGINAL RESEARCH QUESTIONS

The quest of the study was to find out how status, solidarity and social mobility are manifested in domestic space and to measure it. In this study, status has been assessed in terms of difference and distinction; solidarity has been assessed in terms of interaction with a pivot or focus of the relational tie in the home; and social mobility has been assessed in terms of resistance and fluidity of objects and activities across spatial boundaries. In order to accomplish this, culinary practice as a system of interrelationships and activities was used as a tool to calibrate this manifestation through marker variables of culinary practice in the form of culinary-mapped spaces, the activities, the objects, the food and the personnel involved in culinary activity.

It was also an objective of the study to assess how well spatial laws of morphology and sociological concepts of status, solidarity and social mobility determine the choice of space use by analysing the kitchen as both a physical and a social space. Spatial morphology was needed to ascertain the principles that govern the spatial relationships and configuration and determine how people, activities and objects occupy spatial

boundaries. The integrity of spatial boundaries was examined to understand the concentration of activities and storage patterns into one space or the dispersal over several spaces either physically or in sensory terms (visually, auditory and olfactory) and the extent to which these activities and objects ultimately impinge on other spaces with different designated functions and space labels. The study argued that people, space, activity, objects and food acquire a status relative to others of its kind, and as such, people have a status in relation to other people, spaces have more importance than other spaces, activities require different grades of skill and show status in form of the personnel to whom it is allocated, and in material culture, objects are more valued than others. The study also argued status of food was found not be related to its nutritional qualities but more as a perception of the food of the rich. As such they all bear symbols of status that is understood by people in the domestic environment. By tracking the footprints of persons, activities, objects and food across the domestic space, the study examined how the sociological concepts of status, solidarity and social mobility were applied in the use of space.

The comparative study was based on households in shared accommodation versus households in self-contained accommodation from three areas and three housetypes in lle-Ife, Nigeria. Space syntax tools were used to identify the morphological properties of culinary-mapped spaces in terms of their configuration and relationship to other spaces in the home. Activity was assessed in terms of its locus, its distribution, its shared spatial compatibility with other activities, its reaction to sensory proximity of other activities, its impingement on non-culinary labelled spaces, and its spatial distance from the cooking focal point. Objects and food were assessed in terms of storage, and retrieval for use in cooking. Objects, both manual and electronic appliances were categorised into implements and facilities, in order to map their location in space. Food was classified into the raw and cooked (Levi-Strauss, 1969), with industrial packaged or canned processed foods being ranked as highest in status based on its economic value and not on the nutritional value of the food. With regards to personnel, the study looked at the allocation of roles according to gender and age, and in particular, the participation of males and fathers in culinary related activity.

The review of previous studies in domestic space morphology, social action and social structure helped steer this study to explore how day-to-day practical activity could be enhanced or hindered by established spatial and social factors. For instance, Lawrence

(1984, 1990) had recommended the analysis of water-based activities in relation to the kitchen as a tool to carry out a comparative study on kitchens in Australia and England. This present study however sought to go one step further, and also look at the constituent variables of the kitchen itself, in terms of people, culinary activity, food, utensils, and what they mean in a cultural sense, and how they are spatially distributed. It emerged from this study that designating a space and even configuring it for use as a kitchen did not mean that all related variables would necessarily be consistent with that designation, as several factors, both spatial and social, can cause the cross-migration of objects, activities and people's boundaries beyond the spaces allocated to cooking.

Having argued that the Yoruba employ the principles of seniority and equality to negotiate their status and authority, responsibility and delegation in everyday life and society, this study has also now queried how these principles feature in the domestic environment and particularly in relation to the kitchen and culinary activity.

REPACKING HOUSEFORM AND CULTURE

In the unpacking of houseform and culture the study analysed the spatial interaction of people, activity, objects and food with respect to culinary practice. This is defined as follows:

- People: roles and responsibilities on the grounds of patrilineal gender, seniority, male involvement.
- Space in terms of geometric and syntactic configuration.
- Activity in terms co-spatial compatibilities, boundaries and sensory proximity of cooking, eating, dishwashing, foodprocessing and ceremonial cooking.
- Objects in terms of storage and retrieval for use of traditional equipment, electronic appliances, implements and facilities.
- Food in terms of storage and retrieval of raw and cooked foods, indigenous and import foods.

People

In the study of modern integral kitchens in the university households, mothers were mentioned as the main cooks, assisted by daughters first, and then sons. Mothers claim to have the superior expertise and experience in culinary matters and in a way, they raise the status of the kitchen. The kitchens are equipped with electronic appliances as

well as traditional implements, and most utensils and food are within easy proximity, though it is also likely that some foods and fragile appliances could be kept locked up, or basically under her control. Nevertheless, the hierarchy of persons is evident in the manner roles and responsibilities are allocated. So, in practice, a person of low status such as a maid or youngest female could be working in the kitchen, and need to use electronic utensils, which are high status objects that have been kept in the bedroom, which is a higher status space with respect to the kitchen. This lower status individual then uses the electronic appliances to prepare food which is a lower status activity which is eaten in the parlour, in other words as a higher status activity in a higher status space, and the used dishes are then cleaned up and washed in the kitchen sink or by the well in the backyard which is lower status space relative to the kitchen. This illustrates the traversing of status boundaries that can occur in culinary matters. The status of the individual is evidenced in the type of work allocated to her with respect to the availability of alternative personnel. In other words, their status varies when others come to participate in the activity. For instance, if a senior person were to be present, a junior would be expected to carry out the lower skilled jobs like dishwashing or peeling, grating, and other pre-cooking tasks and the senior may then take on the cooking activity itself.

Also the study showed that male involvement in the kitchen did not significantly alter across the sample, as cooking was still viewed as the responsibility of the female, such that if they were present in the home, the males were not likely to be involved, and this was irrespective of socio-economic backgrounds.

Space

By mapping culinary activities and objects into all the spaces in that they impinge upon, the socio-spatial properties of adjoining spaces to the kitchen begin to emerge, in terms of how that configurational relationship is perceived. Bearing in mind that adjoining spaces would generally have a sensory (visual, smell, sound) proximity to the kitchen, the mapping showed a range from housetypes where a related activity could take place in the adjoining spaces to other situations where several functional convex spaces have to be traversed to link the same and similar activity. For example, the analysis showed how eating could take place in the adjoining dining room in an integrated kitchen, but in a detached kitchen, such cooked food would traverse the backyard and the hallway, to get to the parlour for eating. In the same vein, though food processing and dishwashing

may be too messy for the kitchens that do not have pipe-borne water supply, plumbing and drainage, the presence of toilet facilities in the backyard could prevent foodprocessing taking place there as an alternative venue whereas they would not have that much of an effect on dishwashing. Certainly, the presence of utility services, and the compartmentation of food and utilities can help to strengthen the integrity of the kitchen boundary, but other social parameters relating to compatibilities and incompatibilities of activities in terms of spatial proximity and co-presence, can contribute to the weakening or strengthening of the boundary.

The study found domestic cooking to be a status activity, and more specifically, a low status activity in the shared accommodation because of the tendency for it to be delegated, but a high status activity in the modern household due to the emphasis on skill particularly when the mistress of the household undertakes the role. The mode of solidarity found in domestic culinary practice tends to be the one between a mother and her children in the main but the father would tend to be excluded. The aspiration of social mobility for households is to live in self-contained accommodation with integral utilities and infrastructural facilities and electronic appliances, and these trappings are also status symbols. The study found that cooking does not always take place in the most segregated spaces as in the modern house, but can also take place in the most integrated space as in the orowa of orowa houses, yet, because the orowa is a multi-functional space it can be argued that cooking in this context has no place of its own, and when it This suggests that the kitchen either has no place, or when it does, it acquires a status by its association with cooking.

Objects

The possession of traditional and modern equipment relates to socio-economic capability of families, with the traditional utensils being the main types found in low-income households and the electronic appliances, in the higher income households. Most households owned a mortar and a grinding stone, though not all used them. Traditional implements such as ladles (*omo-orogun)*, serving scoop (*igbako*), sieves (*ase)* etc. are also found in every kitchen, as most foods in the Yoruba menu would require their use. Equipment such as the urn (*amu*) was not found in the modern Unife houses. The analyses also showed that though more labour-expending processes were being discarded in favour of technology, as seen in the use of the grinding stone, yet, where technology did not seem to produce a good enough substitute product, as in the case of

pounded-yam, people either revert back to traditional implements or changed their diet, as in the case where processed powdered *iyan* was used and kneaded in the same way as *amala, fufu* etc. The 1999 Nigerian Demographic and Health survey used the ownership of fridges to assess the economic capability of their sample because fridges, like cars and television sets were status symbols in the society. The present study found that in kitchens in Enuwa and Akarabata, the fridge ownership was lower than the national average and this further emphasizes the significance of fridges as status symbols.

Activity

The mapping of eating, food processing, dishwashing and ceremonial cooking in relation to cooking revealed that cooking was either associated with eating or associated with messy activities. Generally, eating as an activity was seen to be pulling towards to living room and iyara in the modern households and orowa and rooming households respectively, and away from the kitchen, whilst ceremonial cooking pulled away from the kitchen towards the outside. In all, the analysis revealed the cultural notions of spatial compatibility and incompatibility of different activities in close proximity, and the effect of sensory proximity of an adjoining activity or space as mentioned above, that could determine whether any of the culinary related activities was acceptable or not in the cooking space.

Besides the generic culinary activities of food preparation, cooking and dishwashing, the study found that in comparison to the elite women, several women in low-income households expend considerable labour and time in ancillary activities, which included fetching water, firewood and coal, making the fire, regularly fanning the flames as the food cook, quenching the fire and sweeping up the ashes. Tasks also consisted of daily reheating cooked stews, and preserving meats by smoking, sun-drying or deep-frying, etc.

With respect to utilities like fuel and water, the analyses of Enuwa and Akarabata households reveal that in some cases where purer pipe-borne water was available but at considerable distance to the home, several people elected to use the water source in closer proximity, which in several cases was the well for their daily cooking. It is worthy to note that there was a possibility that these wells might be polluted, although the study did not query whether these users were aware of the risks and had made an informed choice on their source of water. In any case, convenience emerged as a priority in these

scenarios. The cooking times were somewhat similar across the sample, as most people worked around the daily schedules of school and work. As such, ready-made foods like bread and cereals were popular and favoured by those who could afford them.

Compatibility and incompatibility in space and time

In traditional Yoruba domestic space, even in those with poly-functional spaces and few designated function spaces, the tendency would be to spatially isolate cooking, food-processing, eating, laundry and dishwashing activities as much as possible in order to prevent the contamination of food with soap, of smells and oils with clean laundry and of dirty water with food. If this could not be achieved spatially, then it became a function of time, as the sequence of activities ensured that no two incompatible activities took place simultaneously. On the other hand, living/non-service activities such as entertaining, eating, sleeping was found to take place within the same spatial boundary. In houses with modern infrastructure in the form of plumbing and drainage, cooking and dishwashing was spatially compatible, because the latter was compartmented.

BOUNDARIES AND GRAVITATIONAL PULL

The analysis that mapped the footprints of culinary activity, storage and food across the domestic space also looked at the dispersal and distribution of these footprints from the cooking space in order to assess the strength and self-containment capabilities of the kitchen boundary. The kitchen with a strong or secure boundary is that which has much of the facilities for work and storage within the same convex or functional space as the cooking space, and a weak boundary is that which facilitates the movement of work and storage to take place in areas beyond the cooking space. In other words, activities and storage patterns tended to either move away or move towards the cooking space, hence the notion of negative or positive gravitational pull from the kitchen. The study looked at this pattern with respect to the position of the three basic nodes of heat, water and storage, the distribution of activities and the location of storage places for food and utensils. By calculating the step depth of the nodes, activities and storage items, the study was able to show whether the kitchen had a strong boundary or not, and what facilitated the pull towards the boundary or movement away from the cooking space.

The three basic nodes

The study found that kitchens that were located within the house tended to have the strongest boundaries and the kitchens situated in outhouses had the weakest boundaries. The study found that the availability of plumbing, drainage, water, gas and electricity supply particularly in the modern house kitchens helped to make the kitchen boundary more secure as these facilities enabled most activities and storage requirements to occur close to the cooking space and pull the boundary lines towards the cooking space. This suggests that infrastructural facilities tend to have a positive gravitational pull on the kitchen boundary.

Culinary activities: The analyses on dishwashing, food processing and ceremonial cooking showed that where water supply and drainage was present, dishwashing tended to take place there. Therefore, if the water source and drainage were within the kitchen space, then dishwashing would have a positive gravitational pull on the kitchen, but if they were outside, then dishwashing would have a negative pull. As ceremonial cooking is usually done on open fires, it constitutes a fire hazard in enclosed spaces. The attendant fumes and smoke mean that it has to take place in open spaces away from the kitchen; hence weakening the boundary and giving a negative gravitational pull on the kitchen. Food processing is a messy activity, and in several instances it takes place at least one step away from the kitchen boundary, and in some cases, outside space is also used. The study therefore found that messy and hazardous activities tend to weaken the boundary, and have a negative gravitational pull from the kitchen.

Cooking utensils: There is a tendency for bulky and robust utensils such as grinding stone and mortar and pestle to be kept close for convenience for use, ease of accessibility for retrieval and relative proximity to the kitchen. Therefore heavy and bulky cooking utensils would have a positive gravitational pull on the kitchen. By contrast, there is a tendency for the access to delicate and expensive utensils to be restricted and controlled against damage, and kept in a storeroom, cabinet and sometimes the bedroom, indicating negative gravitational pull.

Food: There is a tendency for storage for food susceptible to decay and ready-to-eat to be kept close to where it is to be eaten and away from the kitchen, indicating a weak boundary and negative gravity. In contrast, there is the tendency for durable, uncooked foods, grains, cereals and spices to be kept close to where it is cooked indicating a positive gravitational pull and strong boundary. Yet, there is a tendency for canned

foods to be stored for control against wastage in a place which gives security, surveillance and restricted accessibility, which may not be available within the kitchen space thus giving negative gravity and weak boundary definition.

The following diagram is a summary of this pattern of gravity and boundary for the variables as stated above.

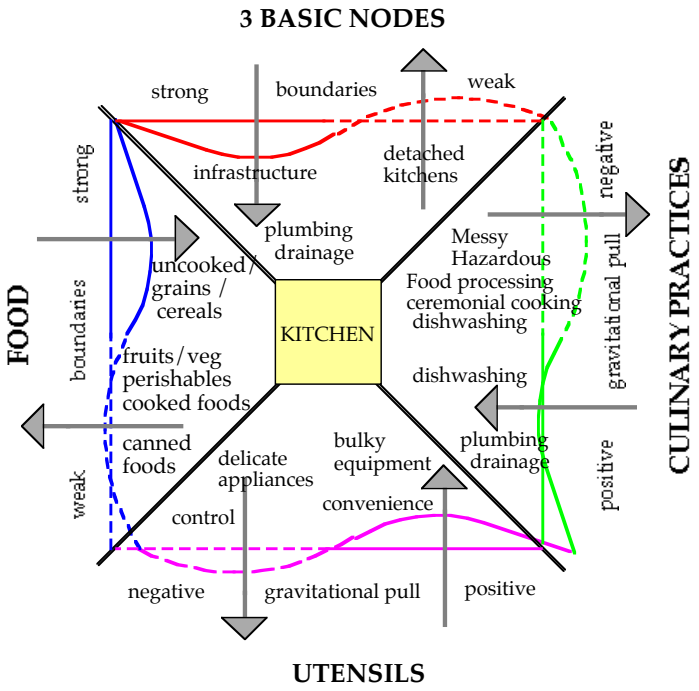


Figure 8.1 – Chart of boundaries and gravitational pull

The solid lines represent the secure boundary definition and the dashed lines represent the weak boundary. The convex lines correspond to the positive pull of gravity towards the kitchen indicating the characteristics of the variable make it more relevant to the kitchen. The concave lines correspond to the negative pull of gravity indicating incompatible characteristics of the variable that facilitate its movement away from the kitchen.

CONVENIENCE AND CONTROL

From the analysis, it emerged that a series of principles guide the decision of where to store food and utensils that then determine whether they within kitchen boundary or beyond. The two main components are preservation and retrieval. Preservation refers to the keeping of food from decay and utensils from damage and loss; and retrieval refers to the transportation of food and cooking utensils from the place of storage to the place where it will be used. Usually, the first decision to be made by the householder will be whether to preserve the item and or display it. To display the item is to keep it on view for others, usually, non-residents to see, and as such, they will usually be placed in the parlour or place of reception. For instance, some Yoruba women display their crockery in locked showcases, thereby preserving and displaying at the same time. However, for most other items, it is either one or the other.

The next thing to consider about storage of food and utensils will be about how to keep it, and where to do so in order that it can be preserved, displayed and retrieved conveniently and safely. At first sight, it seemed that most items tend to be kept either in the kitchen, in a storeroom or in the bedroom, but on closer scrutiny, it became evident that other factors guide people's storage options and decisions.

Preservation: Preservation of perishable food is achieved either through refrigeration or processing (such as deep-frying of meats to remove all moisture or curdling of milk to produce cottage cheese –*wara*). If either option is not available to the household, then regular shopping for fresh produce is done, and food is cooked immediately. Uncooked foods such as yam tubers, grains, rice, cereals, beans and canned foods such as tinned tomatoes, sardines etc are either kept on shelves, sacks, in cupboards or air tight containers, and do not necessarily require mechanical appliance for preservation. Plates and cups are to be preserved against breakage and pots, pans and cutlery from rust (if not of stainless steel), theft (in multiple accommodation) and damage. The choice of the storage receptacle in these instances could be cabinets, shelves, cupboards and drawers.

Retrieval: If a facility exists to store food and utensils within the premises, the next decision would then be to determine the required difficulty or ease of retrieval; in other words, the type of accessibility required would either be restricted or non-restricted. The value (sentimental or monetary) placed on the item will determine if the accessibility is to be restricted and to what extent. Expensive groceries, canned foods, sugar, delicate

chinaware and electrical appliances would have restricted access, whilst local ingredients, spices, salt which can only be consumed in small quantities, pots, cutlery, implements and utensils would have non-restricted access, particularly to members of the household. Restricted accessibility implies control and non-restricted accessibility implies convenience of retrieval.

The following flow chart shows how these factors guide the space use decisions:

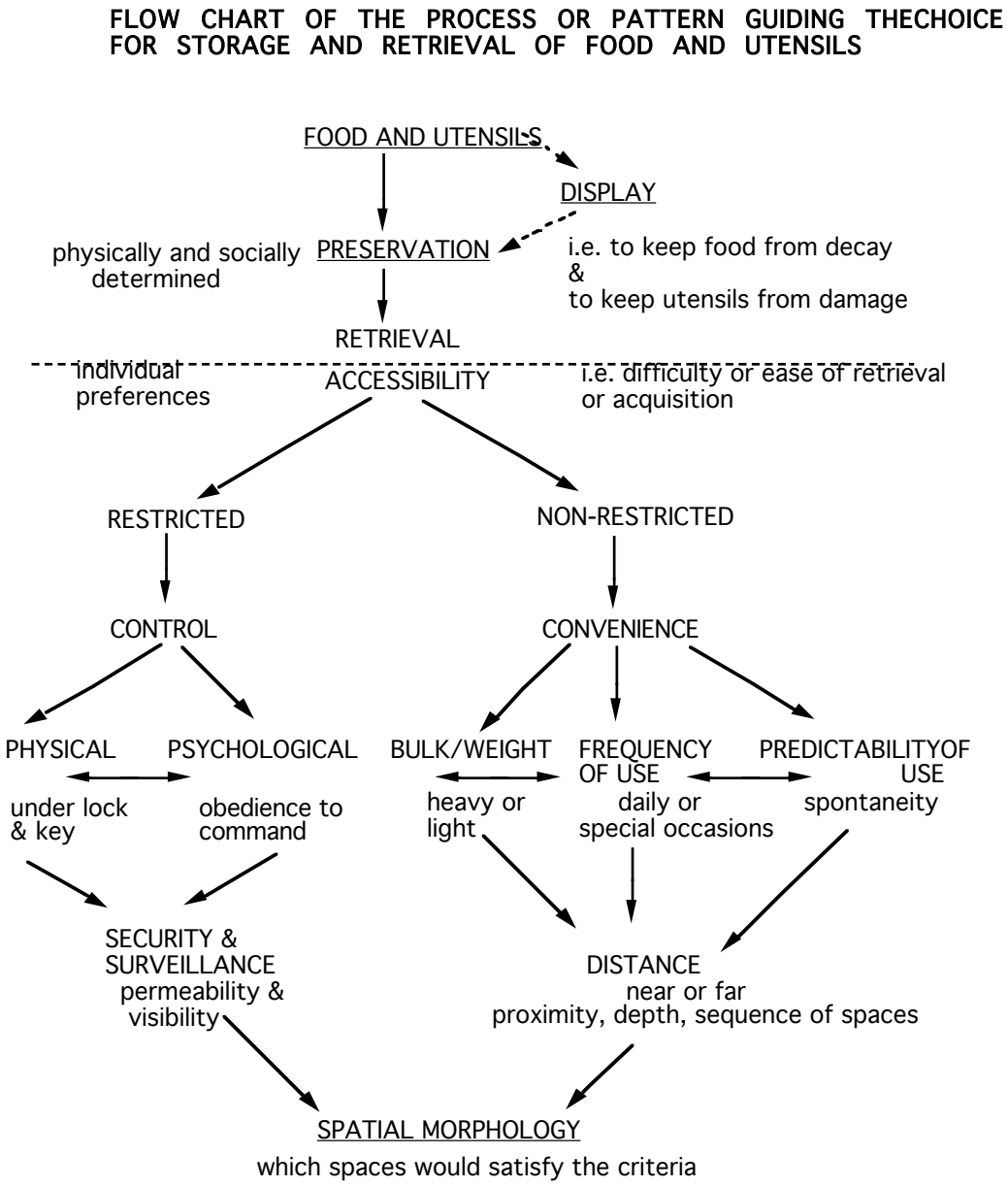


Figure 8.2: The flow chart for storage of food and utensils

Restricted access and Control: Control can either be physical, e.g. keeping groceries locked up in a store or main bedroom (which in a sense could also be psychological); or psychological (i.e. where there is an understanding that only certain designated persons may authorise the use of the item) or both. Spatially, control is exercised over the use of the item either by making the space secure under lock and key (permeability) or enabling surveillance (visibility) of the item or space.

Non-restricted access and Convenience: The ease of retrieval of food and utensils are further guided by three factors, namely the bulk or weight of the item, the frequency of use and the predictability of use. Bulky items such as mortars and grinding stones, and sacks of grains would need to be easily accessible, though food items tend to have more control exercised over them because of wastage and theft. The frequency of use would also affect how close by it is, for instance a electric mixer blender is used for almost every type of food but a cake mixer is used occasionally. Finally, the predictability of use refers to whether the use of the item may be regular, contingent or spontaneous. These three factors guide the proximity and distance of the food and utensil to the place where it is to be used.

Spatial morphology: The chart therefore shows how spaces are be selected based on how well they satisfy the criteria for visibility, permeability, accessibility and proximity for storage, preservation and retrieval of food and utensils which underpins the pattern of boundaries and gravitational pull presented in the analysis.

STATUS, SOLIDARITY AND SOCIAL MOBILITY IN DOMESTIC SPACE

In the spatial analysis, the social positioning of the culinary mapped spaces was assessed in relation to the co-spatiality of activities and proximity of adjacent activities. The results show that the orowa was seen more as a central living space in orowa houses but more as a main circulation space in rooming houses. As such, though the orowa was the most integrated space in both housetypes, and had a similar geometric and syntactic rating, it had a higher symbolic status in accommodation shared with kin and a utilitarian status in accommodation shared with co-tenants.

The study found that there was considerable divergence of eating and dishwashing on either side of cooking, such that in houses without a designated kitchen, whereby a multi-functional space was used, if eating was to take place there alongside cooking, then dishwashing tended to be excluded, because dishwashing and eating did not appear to be co-spatially compatible in these housetypes. This is therefore a pattern of status of divergence, in that the both variables move in different directions from the focal point.

In some instances such as in rooming houses where individual households worked to their own timetables and patterns, it was found that where previously, food preparation activities such as foodprocessing and eating took place in the hall space alongside cooking, when another co-tenant moved in and chose to bathe their babies in the hall or wash dishes, it was found that eating relocated in to the room. In this situation, dishwashing moved in and interacted and re-distributed the social positioning of all the other activities, because their existence there had made some other activities co-spatially incompatible. As such, dishwashing has produced solidarity by association with cooking and foodprocessing. By moving into the orowa, dishwashing has acquired a higher status as a result of its promoted co-spatiality with cooking and foodprocessing, relative to its previous lower status outside in the yard. The boundaries of the hall become permeable or fluid to a lower status activity, hence a social mobility. Eating on the other hand, a high status activity that was previously spatial co-present with cooking, and then moves into an exclusive space to maintain its status, and this space may be more segregated and deeper, and as a result has created a status by re-segregation. The study also found that the sensory proximity of adjacent activities have an effect on the incompatibility of space and activity.

The study also found that in shared accommodation, where there is no space allocated as the kitchen, then the most integrated and communal spaces is used, but when a space is designated as kitchen, it tends to be segregated. In self-contained accommodation, the kitchen also tends to be one of the most segregated of living spaces.

Another characteristic of the shared accommodation was the multi-functionality of spaces such as the orowa/hall and the iyara/room, which meant that spaces had a weak categoric differentiation (Hanson, 1982). The orowa was used as both a service and living space, and the iyara was both a living space and a sleeping space. They therefore

had a spectrum in form of transitional mapping, which required ascertaining which specific aspects of daily living activities were performed in each space in order to see its effect or interaction on the status of other activities that were co-present. It was found that the convergence of various types of activities resulted in lowering the status of the multifunctional space, such that higher status activities sought exclusive segregated space to occupy.

Furthermore, the study found that the boundary of the kitchen was weakened by the location storage spaces in relation to cooking and modern houses had the closest spatial distance from cooking, and rooming houses had the longest spatial distance. The study showed that the presence or lack of modern infrastructural facilities like plumbed water supply, electricity and drainage had an effect on the spatial distance of activities like dishwashing and the storage of food, particularly those requiring refrigeration.

In terms of the syntactic value of status space, the study also found that eating, a high status activity took place in the iyara, a segregated space for the shared accommodation, but in the dining room, an integrated space in the exclusive accommodation. The converse occurs whereby dishwashing, a low status activity takes place in the backyard, a high integration space for the shared accommodation, whereas, dishwashing takes place in the relatively segregated designated kitchen.

With regards to utensils storage, the study found that the most segregated spaces tend to be used for the storage of high status equipment in the shared accommodation, and this space is the iyara (bedroom), whereas in exclusive modern houses, the high status equipment (such as microwave oven) tends to move away from the kitchen and towards the higher integrated dining room. The study also found that bulky traditional equipment tend to remain in the lower status cooking spaces which is of high integration in the shared accommodation and of lower integration in the exclusive accommodation.

Likewise, with regards to food storage, high status foods are kept secure in segregated storage space, which will range from the segregated bedroom to a locked cupboard, or store room/pantry.

As such, in shared accommodation, there is an inverse relationship between the increase in status of the space, activity and objects and increase in integration value of the space, whereby high status corresponds to high segregation in shared accommodation. The opposite holds for exclusive accommodation where there is a direct relationship and high status corresponds to high integration, and low status corresponds to low integration.

With regards to roles, the study found a clear relationship between the socio-economic status of individuals and their traditional demographic ideologies of gender/ age-sets roles with regards to culinary activity (*Ref: Tables 7.27 & 7.28 in current study*). The study found that more males participated in culinary-related activities as the focus of attention moves from shared accommodation with kin groups toward exclusive accommodation independent of kin, and as people move up the socio-economic ladder. However, with regards to parent/child roles, the study found that Westernised values of the nuclear family responsibilities which makes a woman responsible for the meals her husband in many instances tended to override traditional ideologies whereby culinary roles and responsibilities were delegated to children, and which was clearly practiced in the orowa and rooming households.

There is also the probability of the "audience" effect, which Oppong (1975) alluded to, whereby in the absence of other adults in the home, men participated in domestic activities like childminding and food preparation as a contingency situations like ill-health or work schedules of the wife. In the shared accommodation, it is unlikely for there not to be any other adults present, so men are not likely to go against the grain and perform domestic and culinary activity where they may be seen by others. Chapman (2004) found in relation to domestic practices in households, that the changing demographics of modern families has resulted in negotiations and a variety of role splits in ways other than the traditional ways, and in relation to this study, this tendency was more likely to occur in exclusive accommodation. For instance, in one of the modern houses in this study where the father participated in food preparation, it was one where he had to eat pounded yam (*iyan*) everyday, and because his wife works as a nurse on shift work, and was unavailable, and bearing in mind that *iyan* had to prepared close to the time of eating, he had to make it himself. He also claimed that because she came from a different part of Yorubaland, she, in his own estimation, was incapable of making it to his liking, so he always prepared the *iyan*, and she would make the stew and sauces.

The wife claims that if his family came to visit, she was likely to be severely criticized by them if her in-laws became aware of the negotiated practices of their household.

As such, living in shared accommodation serves to reinforce traditional ideological stereotypes, and living in exclusive accommodation enables the negotiation of individuals from the traditional stereotypes.

With regards to role allocation with respect to age, the study found that though there was a trend towards successive delegation and allocation of cooking from the parent to a joint responsibility and finally to the child as they begin to mature in order that the parent can then take on a supervisory role in orowa and rooming houses, there was more of a tendency for the roles to be shared by parent and child in modern households. In kitchen layouts, designers usually tend to consider the hazards, convenience and comfort in space use, but this now suggests that they now also need to bear in mind that an adult may not always in charge of kitchen, and that responsibility could be that of a teenager or adolescent, who can be expected to be more inexperienced and arguably more vulnerable to risks in health and safety.

SUMMARY

The original research question was to describe how status, solidarity and social mobility were manifested in culinary related practice in the domestic space. The study found that the distribution of culinary-mapped spaces in the house related to factors such as plumbing, drainage, utilities, and restriction or convenience in storage patterns, which was manifested in either the weakening of boundaries or a gravitational pull towards the kitchen to be self-contained. The study found that the household demographic patterns had an effect on role allocation such that the possibility to negotiate roles across the gender barrier was determined by the availability of younger persons to delegate work to, and sometimes the audience effect, which served to reinforce role allocation along traditional lines.

Essentially, the kitchen in domestic space portrays several aspects of the Yoruba society's rules of status and solidarity in the way tasks and responsibilities are allocated and delegated, and in the social and economic value placed on activities, objects and food, and the storage patterns reflect the status of objects in material culture. The study

also found that social status is spatialised differently where accommodation is shared to where it is self-contained, almost like an urban environment to a local residential neighbourhood.

IX Conclusion

The purpose of this chapter is to state the contributions the study has made to the field of domestic space morphology, the limitations of the study and the areas for future research

INTRODUCTION

This study has demonstrated how aspects of the society's rules of status, modes of solidarity and patterns of social mobility were expressed in the way the roles were allocated to individuals, and how space was used for or forbidden to be used for the various culinary-related activities and how food and utensils were stored. The status of a person determine what activities they are allocated, what responsibilities they have, what spaces they are allowed access to, or restricted from, what objects they are expected to handle, and which people they interact with.

By breaking down the kitchen into its constituent activities and storage patterns and following its peripatetic footprints in domestic space, by analysing the morphology of space in terms of its configuration using the principles and techniques of space syntax methodology, and by observing how culinary activity was carried out in a very practical sense, the study was equipped with the evidence needed to understand how spatial rules and social status, solidarity and social mobility featured in domestic space use, particularly with regards to the kitchen and culinary practice.

The study argued that acceptable patterns of space use were expressed through the compatibility and incompatibility of various activities and objects taking place in spatial co-presence and sensory proximity, such that if the configuration did not provide a spatial separation or compartmentation of these components, then people could choose to move to a place of separation where the sensory proximity of the incompatible activity and object became indiscernible. This compartmentation could take place in space or in time, particularly when multiple households who shared service spaces or worked to different time schedules. The study found that the lack of utilities and fixed

furniture permitted multi-functionality and flexibility in the use of a single space on the one hand, but also resulted in the dispersal of culinary-related activities and storage over many spaces on the other hand. The consequence of the lack of space designation was that some culinary-related activities did not have a place and they therefore took place almost every other space. The study also found that where there was a designated kitchen, the presence or lack of utility services and storage facilities either served to reduce or extend the boundaries of the kitchen respectively.

Contribution

The thesis has made contributions in two major areas; first in the area of methodology, and secondly in the findings.

Several current studies on the kitchen and culinary practice used the work triangle and its three basic nodes as the basis of analysis, but such studies were restricted to households with designated kitchens that had sources of water, heat and storage present. This study has defined a broader approach in the form of culinary-mapped spaces whereby any space that is used for a culinary related activity, including cooking, eating, dishwashing, foodprocessing, ceremonial cooking, and the storage of food and utensils can be analysed. By using this approach, it divests comparative and cross-cultural research of the limitations that requiring a designated kitchen space with physical and spatial boundaries would pose, such that almost any domestic setting can be compared with another. Another area of significant contribution in the methodology is in the definition of sensory proximity of adjacent activities to spaces as a development on the analysis of isovists used by space syntax techniques. The analysis of sensory proximity is based on the sensory awareness of activities in an area, and not just limited to perception based on visibility and permeability.

In terms of findings of the study, the contribution is in the definitions of types of status, solidarity and social mobility that can occur, that is by convergence, divergence, association and re-segregation. By assessing the interaction between activities, objects and food in the way they occupy space, the study proposes different generating factors that describe how status, solidarity and social mobility present themselves. The study argued that some activities and objects acquire status through the activities and objects they share space with and others maintain their status through the activities and objects they dissociate themselves from. Another significant finding of the study is in the area of

determining the real boundary of the kitchen by looking at the extension of the culinary footprint. To this end, the study defined the idea of a gravitational pull that drags the boundaries of the kitchen towards the place where service utilities and infrastructural facilities are present. The study also analysed storage patterns and found that these related to convenience of access versus control and restriction of accessibility.

Limitation:

The study has been conducted on a random sample in three distinct socio-economic areas. As such, the demographic composition has been random, and can only make limited generalisations on the effects of the development stages of households to the patterns of role allocation for instance. Further research can look into structuring the original sample collection according the demographic make-up of the household in terms of the stage of the development cycle in order to assess these parameters in light of availability of likely people.

In addition, in rooming houses, this study has looked at only one household within each complex, but has received the broad range of views from across the sample as a whole to cover the socio-economic mix. Nevertheless, further research may also look into comparing whole complexes of co-resident households who do not have a biological tie with each other.

The way forward

At the very beginning of this study, the question was asked about whether social hierarchy and social distance had a spatial dimension in the domestic environment and was exhibited in the manner in which space was used, and if so, whether it could be measured? The study has shown that that there was indeed a spatial dimension to the sociological concepts of status, solidarity and social mobility, and the study has shown how it could be measured, and interpreted.

In terms of the bigger picture, the study has shown that the social mobility of the kitchen and culinary practice determined by its capability to be self-contained, and that capability related the presence of infrastructure and utility services within the space to support all the activities. Yet the messiness of the cooking process and its status as a service activity can be expected to move the dining activity away from the kitchen and

not toward it. Even in situations technology in form of electronic appliances and processed foods would permit, it was found that dining was becoming more associated with the watching of television and entertainment and in that sense, it became associated with the living room than the kitchen and service space. In this sense, the trend in Western societies for kitchen-dining rooms rather than living-dining rooms is not likely to be favoured at this time, without perhaps a radical change in diet and methods of food preparation.

A wider objective will be to begin to address the knowledge gap in the design approach generally used to develop publicly-funded low income housing in Nigeria on the premise that that proposals based on actual practice and lifestyles are more likely to succeed in the generation of thriving communities particularly when the designing, planning and implementing, development and maintenance take into account the established social networks of the people. Onokerhoraye (1984) had noted that previous schemes had all seemed to suit a more middle-income family, and though he attributes it to the costs, there is however considerable ignorance about the day-to-day issues faced by the people and as such, designs had tend to presume and prescribe a way of living for them. A consolidated approach to the development of settlements has been implemented successfully in other countries as Greene (2003) reported with respect to informal settlements in Santiago, Chile. In this programme, households in informal settlements were assigned plots of land and provided with basic public infrastructure like roads, street lighting, and individual sanitary unit consisting of a toilet and kitchen connected to the public mains water supply and sewerage system. The dweller households were then left to develop their property, as they are able to. Each settlement had varying degrees of success and Greene (2003) attributed it to way they were integrated into the established network of the greater urban system to which they belonged.

To sum up, the study argues for an increased practical understanding of the domestic environment in order to effectively address the aspects of social life. By breaking down each aspect of the practical activity, a researcher is better equipped to analyse, assess and make judgements.

X References

1. Abercombie, N., Hill, S. and Turner, B.S. (2000) Abercombie, N., Hill, S. and Turner, B.S., (Eds.) London: Penguin Books.

2. Achebe, C. (1967) Things Fall Apart, edn. London: Heinemann.

3. Adalemo, I.A. (1981) Marketplaces in a developing country: The case of western Nigeria, edn. Ann Arbor: University of Michigan.

4. Afonja, S. and Pearce, T.O. (1984) Social change in Nigeria, edn. London: Longman.

5. Aimiuwu, O.E.I. (1971) Oduduwa. Nigeria Magazine 107/109, 85-90.

6. Akinjogbin, I.A. (1966) Oyo Empire in the 18th century: a reassessment. Journal of the Historical Society of Nigeria 3, 449-460.

7. Akinjogbin, I.A. (1982) Oyo Empire in the 18th Century: a reassessment. In: Stanley, J., Olaniyan, R. and Adenle, D.c., (Eds.) Ife, The Holy City of the Yoruba. An Annotated Bibliography, pp. 5 Ibadan, Nigeria: University of Ife Press]

8. Akinjogbin, I.A. (1956) Prelude to the Yoruba civil wars of the nineteenth century. Odu 1, 24-46.

9. Alexander, C., Ishikawa, S., Silverstein, M., Jacobson, M., Fiksdahl-King, I. and Angel, S. (1977) A Pattern Language, edn. New York: Oxford University Press.

10. Allen, R. (2002) The Penguin English Dictionary, London: Penguin.

11. Alo, O. (1984) Social inequality and the development process. In: Afonja, S. and Pearce, T.O., (Eds.) Social Change in Nigeria, pp. 118-138. London: Longman]

12. Amadiume, I. (1987) Male Daughters, Female Husbands, edn. London. New Jersey: Zed Books Limited.

13. Amole, S.A. (1985) The kitchen in domestic space: A comparison of the conceptual scheme of some architects with laypersons.

14. Amorim, L (2001) Houses of Recife. From diachrony to synchrony. edn. 19.1 to 19.16p. London: Space Syntax Laboratory, University College London.

15. Amorim, L. (1999) "The Sectors" Paradigm: a study of the spatial and functional nature of modernist housing in Northeast Brazil. Unpublished PhD thesis. University College London.

16. Amorim, L (1997) "The Sectors' Paradigm: understanding modern functionalism and its effects in configuring domestic space". Major, M.D., Amorim, L. and Dufaux, F., (Eds.) Volume 2, edn. 18.1 - 18.14p. University College London: Space Syntax Laboratory, The Bartlett School of Graduate Studies. (1997)

17. Anise, L. (1984) Bureacracy and Modernisation. In: Afonja, S. and Pearce, T.O., (Eds.) Social Change in Nigeria, pp. 92-117. London: Longman]

18. Ardener, S. (2000) The Partition of Space. In: Rendell, J., Penner, B. and Borden, I., (Eds.) Gender Space Architecture: An interdisciplinary introduction, pp. 112-117. London: Routledge]

19. Bachelard, G. (1964) The Poetics of Space, Boston, Massachussetts: Beacon Press Books.

20. Bianchi, S.M., Milkie, M.A., Sayer, L.C. and Robinson, J.P. (2000) Is Anyone Doing the Housework? Trends in the Gender Division of Household Labor. Social Forces 79, 191-228.

21. Bienen, H. (1981) The Politics of Income Distribution: Institutions, Class and Ethnicity. In: Bienen, H. and Diejomaoh, V.P., (Eds.) Inequality and Development in Nigeria, pp. 115-160. New York: Holmes & Meier Publishers, Inc]

22. Bilton, T., Bonnet, K., Jones, P., Stanworth, M., Sheard, K. and Webster, A. (1987) Introductory Sociology. Second edn. Kent: Mackays of Chatham.

23. Biobaku, S.O. (1955) The Origin of the Yoruba, edn. Lagos: Federal Information Service.

24. Bose, C. (1982) Technology and Changes in the division of labour in the American home. In: Whitelegg, E., Arnot, M., Bartels, E., Beechey, V., Birke, L., Himmelwert, S., Leonard, D., Ruehl, S. and Speakman, M.A., (Eds.) The Changing Experience of Women, London: Basil Blackwell in associaotion with the Open University]

25. Bourdieu, P. (1973) The Berber House. In: Douglas, M., (Ed.) Rules and Meaning, pp. 98-110. Suffolk: Penguin]

26. Bourdieu, P. (1984) Distinction. A Social Critique of the Judgement of Taste, Abingdon, Oxon: Routledge.

27. Bourdieu, P. (1994) Social Space and Symbolic Power. In: The Polity Press, (Ed.) The Polity Reader in Social Theory, pp. 111-120. Oxford: Blackwell Publishers]

28. Bourdieu, P. (1994) Structures, Habitus and Practices. In: The Polity Press, (Ed.) The Polity Reader in Social Theory, pp. 95-110. Oxford: Blackwell Publishers]

29. Bourdieu, P. (1994) Structures, Habitus and Practices. In: The Polity Press, (Ed.) The Polity Reader in Social Theory, pp. 95-110. Oxford: Blackwell Publishers]

30. Bradley, H. (1994) Gendered Jobs and Social Inequality. In: The Polity Press, (Ed.) The Polity Reader in Gender Studies, pp. 150-158. Cambridge and Oxford: The Polity Press in association with Blackwell Publishers]

31. Brears, P., Black, M., Corbishley, G., Renfrew, J. and Stead, J. (1983) A Taste of History. 10,000 Years of Food in Britain, edn. London: English Heritage in association with British Museum Press.

32. Breiger, R.L. (1998) Solidarity and Social Networks. In: Doreian, P. and Fararo, T., (Eds.) The Problem of Solidarity. Theories and Models, pp. 239-262. The Netherlands: Overseas Publishers Association]

33. The Concise English Dictionary (1989) Brown, L., (Ed.) London: Cassell. 1-85079--341-7.

34. Chan, S.Y. (2000) Gender and Relationship Roles in the Analects and the Mencius. Asian Philosophy 10, 115-132.

35. Chapman, T. (2004) Gender and Domestic Life. Changing Practices in Families and Households. Basingstoke: Palgrave Macmillan..

36. Chaudhury, R.H. (1986) Determinants of nutrient adequacy in a rural area of Bangladesh. Food and Nutrition Bulletin 8,

37. Childe, G. (1944) Story of Tools, edn. London: Corbett Publishing Company.

38. Clarke, A.J. (2001) The Aesthetics of Social Aspiration. In: Miller, D., (Ed.) Home Possessions, pp. 23-45. Oxford: Berg]

39. Cockbourn, C. (2002) Resisting Equal Opportunities. The issue of maternity. In: Jackson, S. and Scott, S., (Eds.) Gender. A Sociological Reader, pp. 180-196. London: Routledge]

40. Collins, R. (1994) Erving Goffman on Ritual and Solidarity in Social life. In: Polity Press, (Ed.) The Polity Reader in Social Theory, pp. 71-78. Cambridge: Blackwell Publishers Ltd]

41. Cone, J.D. and Foster, S.L. (1993) Dissertations and Theses from Start to Finish. Psychology and Related Fields, edn. Washington DC: American Psychological Association.

42. Connell, B. (2002) Hegemonic Masculinity. In: Jackson, S. and Scott, S., (Eds.) Gender. A Sociological Reader, pp. 60-62. London: Routledge]

43. Coolican, H. (1994) Research Methods and Statistics in Psychology. Second Edition, edn. London: Hodder & Stoughton.

44. Crompton, R. (1993) Class and Stratification. An Introduction to Current Debates. Cambridge, Oxford: Polity Press & Blackwell Publishers.

45. Csikszentmihalyi, M. and Rochberg-Halton, E. (1981) The meaning of things: Domestic symbols and the self, Cambridge: Cambrige University Press.

46. Cuff, E.C., Sharrock, W.W. and Francis, D.W. (1998) Perspectives in Sociology, Fourth Edition edn. London and New York: Routledge.

47. Curtin, D. and Heldke, L.M. (1992) Cooking, Eating, Thinking. Transformative philosophies of food, edn. Bloomington & Indianapolis: Indiana University Press Limited.

48. Curtin, D.W. (1992) Food / Body / Person. In: Curtin, D.W.&. and Heldke, L.M., (Eds.) Cooking, Eating, Thinking. Transformative philosophies of food, pp. 3-22. Bloomington & Indianapolis: Indiana University Press Limited]

49. Cusack, I. (2000) African Cuisines: Recipes for Nation-Building? Journal of African Cultural Studies 13, 207-255.

50. Dark, P.J.C. (1959) West African Bronzes. Africa South 3, 109-116.

51. de Certeau, M. (1984) The Practice of Everyday Life, Berkeley, Los Angeles, London: University of California Press.

52. de Vaus, D (2002) Analyzing Social Science Data, edn. London: SAGE Publications Ltd.

53. Delano, I.O. (1958) The Yoruba family as the basis of culture. ODU - Journal of Yoruba and Related studies 21-35.

54. Delphy, C. (2002) Rethinking Sex and Gender. In: Jackson, S. and Scott, S., (Eds.) Gender. A Sociological Reader, pp. 51-59. London: Routledge]

55. Delphy, C. and Leonard, D. (1994) The Variety of Work done by Wives. In: The Polity Press, (Ed.) The Polity Reader in Gender Studies, pp. 159-165. Cambridge and Oxford: The Polity Press in association with Blackwell Publishers]

56. Dembinska, M. (1988) Methods of meat and fish preservation in the light of archaeological and historical sources. In: Riddervold, A.&. and Roperid, A., (Eds.) Food Conservation, pp. 13-24. London : Prospect Books Limited]. University of Virginia, Charlottesville

57. Denis, C. (1984) The role of religious ideas in social change. In: Afonja, S. and Pearce, T.O., (Eds.) Continuity and Change in Nigeria, pp. 139-157. London: Longman]

58. Deutsche, R. (2000) Men in Space. In: Rendell, J., Penner, B. and Borden, I., (Eds.) Gender Space Architecture: An interdisciplinary introduction, pp. 134-139. London: Routledge]

59. Dmochowski, Z.R. (1990) An Introduction to Nigerian Traditional Architecture. Volume One. Northern Nigeria, London, Lagos: Ethnographica Ltd, 19 Westbourne Road, London N7 & The National Commission for Museums and Monuments, Onikan, Lagos.

60. Dmochowski, Z.R. (1990) An Introduction to Nigerian Traditional Architecture. Volume Three. South-Eastern Nigeria. The Igbo-Speaking Areas, London, Lagos: Ethnographica Ltd, 19 Westbourne Road, London N7 & The National Commission for Museums and Monuments, Onikan, Lagos.

61. Dmochowski, Z.R. (1990) An Introduction to Nigerian Traditional Architecture. Volume Two. South-West and Central Nigeria, London, Lagos: Ethnographica Ltd, 19 Westbourne Road, London N7 & The National Commission for Museums and Monuments, Onikan, Lagos.

62. Donley-Reid, L.W. (1990) A structuring house: the Swahili house. In: Kent, S., (Ed.) Domestic architecture and the use of space. An interdisciplinary cross-cultural study, pp. 114-126. Cambridge: Cambridge University Press]

63. Doreian, P. and Fararo, T. (1998) The Problem of Solidarity. Theories and Models, The Netherlands: Overseas Publishers Association.

64. Douglas, M. (1991) The Idea of a Home: A Kind of Space. Social Research 58, 287-307.

65. Douglas, M. and Isherwood, B. (1979) The world of goods. Toweards an anthropology of consumption, edn. London and New York: Routledge.

66. Drewal, H.J., Pemberton III, J. and Abiodun, R. (1989) YORUBA. Nine Centuries of African Art and Thought, New York: The Center for African Art in association with Harry N. Abrams Inc., Publishers.

67. Durkheim, E. (1984) The Division of Labor in Society, New York: The Free Press.

68. Durkheim, E. (1982) The rules of sociological method, London: The Macmillan Press Limited.

69. Eades, J. (1975) The Growth of a Migrant Community: The Yoruba in Northern Ghana. In: Goody, J., (Ed.) Changing social structure in Ghana: Essays in comparative sociology of a new State and an old traditon, London: International African Institute]

70. Ekong, S. (1984) Continuity and change in Nigerian family patterns. In: Afonja, S. and

Pearce, T.O., (Eds.) Continuity and Change in Nigeria, pp. 50-70. London: Longman]

71. Elgee, C.H. (1905) Ensigns of royalty in West Africa. Journal of the African Society 4, 391-396.

72. Ellis, A.B. (1964) The Yoruba speaking people of the Slave Coast of West Africa. Their religion,manners, customes, law, language etc. with an appendix containing a comparison of the Tshi, Ga, Ewe and Yoruba languages, edn. Chicago: Benin Press Limited.

73. Eyo, E.O. (1969) Ife so far. West African Builder and Architect 9, 60-68.

74. Fagg, W. and Willet, F. (1960) Ancient Ife. ODU. Journal of Yoruba and Related Studies

75. Fagg, W.B. (1951) De l'art des Yoruba. Presence africaine 10/11, 103-135.

76. Falconer, J. Koppel, C., (Ed.) The household consumption of forest resources: The local use and value of forests in the West African Humid Forest Zone.

77. Fararo, T. and Doreian, P. (1998) Introduction. The Theory of Solidarity: An Agenda of Problems. In: Doreian, P. and Fararo, T., (Eds.) The Problem of Solidarity. Theories and Models, pp. 1-29. The Netherlands: Overseas Publishers Association]

78. Ferguson, P.P. (1998) A Cultural Field in the Making: Gastronomy in 19th-Century France. The American Journal of Sociology 104, 597-641.

79. Forde, D. and Kaberry, P.M. (1967) Kingdom of Benin. West African Kingdoms in the nineteenth century 1-35.

80. Fortes, M. (1971) Introduction: The Development Cycle in Domestic Groups. In: Goody, J., (Ed.) Cambridge Papers in Social Anthropology No 1: The Development Cycle in Domestic Groups, pp. 1-14. Cambridge: Cambridge University Press]

81. Frankel, B. (1994) Class, Environmental and Social Movements. In: Polity Press, (Ed.) The Polity Reader in Social Theory, pp. 321-325. Cambridge: The Polity Press]

82. Frobenius, L. (1913) The Voice of Africa. Volumes 1 & 2, edn. London.: Ayer Publishing Company. Republished 1980.

83. Garfinkel, H. (1967) Studies in Ethnomethodology, edn. America: Prentice-Hall.,Inc.

84. Garfinkel Harold (1994) What is Ethnomethodology. In: The Polity Press, (Ed.) The Polity Reader in Social Theory, pp. 62-70. London: Polity Press in association with Blackwell Publishers Ltd]

85. Garvey, P. (2001) Organized Disorder: Moving furniture in Norwegian Homes. In: Miller, D., (Ed.) Home Possessions. Material culture behind closed doors, pp. 47-68. Oxford, New York: Berg]

86. Giddens, A. (1990) The Consequences of Modernity. edn. Cambridge: Polity Press.

87. Giddens, A. (1984) The Constitution of Society: Outline of the Theory of Structuration, Cambridge: Polity Press.

88. Giddens, A. (1994) Institutional Reflexivity and Modernity. In: The Polity Reader in Social Theory, (Ed.) pp. 89-94. Oxford: The Polity Press in association with Blackwell Publishers Limited]

89. Giddens, A. (1973) The Class Structure of the Advanced Societies, edn. London:

Hutchinson & Co (Publishers) Ltd.

90. Glaser, B.G. and Strauss, A.L. (1967) The Discovery of Grounded Theory: Strategies for Qualitative Research., edn. Chicago: Aldine.

91. Goffman, E. (1959) The Presentation of Self in Everyday life, edn. London: Penguin Books.

92. Goldthorpe, J.H. (1980) Social Mobility and the Class Structure in Modern Britain, Oxford: Clarendon Press.

93. Goody, E. (1975) Delegation of Parental Roles in West Africa and the West Indies. In: Goody, J., (Ed.) Changing social structure in Ghana, pp. 137-166. London: International African Institute]

94. Goody, J. (1958) The Fission of Domestic Groups among the LoDagaba. In: Goody, J., (Ed.) The Development Cycle in domestic groups, pp. 53-91. London: Cambridge University Press]

95. Goody, J. (1973) Polygyny, Economy and the Role of Women. In: Goody, J., (Ed.) The Character of Kinship, pp. 175-190. London: Cambridge University Press]

96. Goody, J. (1976) Production and Reproduction: A comparative study of the domestic domain, edn. London: Cambridge University Press.

97. Goody, J. (1975) Religion, Social Change and the Sociology of Conversion. In: Goody, J., (Ed.) Changing Social Structure in Ghana: Essays in the Comparative Sociology of a New state and an Old tradition, pp. 91-106. London: International African Institute]

98. Grosz, E. (2000) 'Woman, Chora, Dwelling'. In: Rendell, J., Penner, B. and Borden, I., (Eds.) Gender Space Architecture. An interdisciplinary introduction, pp. 210-221. London, New York: Routledge]

99. Guyer, B (1988) Changing Nupitality in Nigerian Community. edn. Proceedings from the IUSSP workshop on Nupitality in Sub-Saharan Africa

100. Guyer, J.I. (1981) Household and Community in African Studies. African Studies Review 87-137.

101. Hanson, J. (1998) Decoding Homes and Houses: Cambridge University Press..

102. Hanson, J. and Hillier, B. (1982) Domestic Space and Organisation: Two contemporary space codes compared. Architecture and Behaviour 2, 5-25.

103. Haralambos, M., Holborn, M. and Heald, R. (2004) Sociology: Themes and Perspectives, edn. London: HarperCollins Publishers Limited.

104. Hardyment, C. (1994) The Domestic Mystique. In: The Polity Press, (Ed.) The Polity Reader in Gender Studies, pp. 166-176. Cambridge and Oxford: The Polity Press in association with Blackwell Publishers]

105. Heath, A. and Britten, N. (1984) Women's jobs do make a difference: a reply to Goldthorpe. Sociology 8, 475-490.

106. Heise, D.R. (1998) Conditions for Emphatic Solidarity. In: Doreian, P. and Fararo, T., (Eds.) The Problem of Solidarity, pp. 197-212. The Netherlands: Overseas Publishers Association]

107. Hekman, S. (1994) Gadamer and Ricoeur on Hermeneutics. In: Polity Press, (Ed.) The Polity

Reader in Social Theory, pp. 49-53. Oxford: Blackwell Publishers]

108. Heldke, L.M. (1992) Foodmaking as a thoughtful practice. In: Curtin, D.&. and Heldke, L.M., (Eds.) Cooking, Eating, Thinking. Transformative philosophies of food, pp. 203-229. Bloomington & Indianapolis: Indiana University Press Limited]

109. Heritage, J.C. (1987) Ethnomethodology. In: Anthony Giddens and Jonathan Turner, (Eds.) Social Theory Today, pp. 224-272. Cambridge, Oxford: Polity Press, Basil Blackwell Limited]

110. Hill, P. (1975) TheWest African Farming household. In: Goody, J., (Ed.) Changing social structure in Ghana, pp. 119-136. London: International African Institute]

111. Hillier, B. (1996) Space is the machine. A configurational theory of architecture, edn. Cambridge: Cambridge University Press.

112. Hillier, B. and Hanson, J. (1984) The social logic of space, edn. Cambridge: Cambridge University Press.

113. Holtzman, J. (2002) Politics and Gastropolitics: Gender and the Power of Food in Two African Pastoralist Societies. Journal of Royal Anthropological Institute 8, 259-278.

114. Igwara, O. (2001) Dominance and difference: rival visions of ethnicity in Nigeria. Ethnic and Racial Studies. Routledge Journals 24, 86-103.

115. Jackson, S. and Scott, S. (2002) Gender. A sociological reader, edn. London: Routledge.

116. Jaiyebo, O. (2003) Women's livelihoods: Women and household sustenance: changing livelihoods and survival strategies in the peri-urban areas of Ibadan. Environment and Urbanization 15, 111-120.

117. Jansen, L.T. (1952) Measuring Family Solidarity. American Sociological Review 17, 727-733.

118. Johnsen, E.C. (1998) Structures and Processes of Solidarity: An Initial Formalization. In: Doreian, P. and Fararo, T., (Eds.) The Problem of Solidarity: Theories and Models, pp. 263-302. The Netherlands: Overseas Publishers Association]

119. Johnson, S.R. (1921) The History of the Yorubas. From the earliest times to the begining of the British Protectorate, Lagos: CSS Press Limited.

120. Kaplan, A. (2005) Manifest Domesticity. In: Desai, G. and Nair, S., (Eds.) Postcolonialisms. An Anthology of Cultural Theory and Criticism, pp. 479-499. Oxford: Berg. Oxford International Publishers Ltd]

121. Kent, S. (1990) A cross-cultural study of segmentation, architecture, and the use of space. In: Kent, S., (Ed.) Domestic Architecture and the use of space. An inter-disciplinary cross-cultural study, pp. 127-152. Cambridge: Cambridge University Press]

122. King, A.D. (1984) The Bungalow. The production of a global culture, edn. London, Boston, Melbourne and Henley: Routledge & Kegan Paul.

123. Krapf-Askari, E. (1969) Yoruba Towns and Cities. An Enquiry into the nature of urban social phenomena, edn. London: Oxford University Press.

124. Kroeber, A.L. (1923) Anthropology. Culture, Patterns and Processes, edn. New Yoruk: Harbinger Book, Harcourt, Brace and World Inc.

125. Kus, S. and Raharijaona, V. (1990) Domestic space and the tenacity of tradition among some

Betsileo of Madagascar. In: Kent, S., (Ed.) Domestic architecture and the use of space. An interdisciplinary cross-cultural study, pp. 21-33. Cambridge: Cambridge University Press]

126. Ladipo, P. Akeredolu-Ale, (Ed.) (1973) Some observatons on the study of the changing Yoruba family. Volume 2, Ibadan, Nigeria: NISER.

127. Laitin, D.D. (1986) Hegemony and Culture. Politics and Religious Change among the Yoruba, edn. Chicago, London: The University of Chicago Press Limited.

128. Landon, Richard P. "Is the work triangle dead" @ www.spaceplanner.com/rld31The_Work_Triangle_Is_Dead.html. 2002. 2004.

129. Lawrence, R.J. (1981) The Connotation of transition spaces outside the dwelling. Design Studies 2, 203-208.

130. Lawrence, R.J. (1982a) Domestic Space and Society: a cross-cultural study. Comparative Studies in Society and History 21, 104-130.

131. Lawrence, R.J. (1987) Housing, Dwellings and Homes: Design theory, research and practice, edn. New York: John Wiley & Sons.

132. Lawrence, R.J. (1990) Public collective and private space: a study of urban housing in Switzerland. In: Kent, S., (Ed.) Domestic architecture and the use of space, pp. 73-91. Cambridge: Cambridge University Press]

133. Lawrence, R.J. (1984) Transition spaces and dwelling design. Journal of architectural and planning research 1, 261-272.

134. Levi-Strauss (1969) Mythologies. Volume 1: The raw and the cooked, London: Penguin.

135. Levi-Strauss, C. 1966) The culinary triangle. New Society 937-940.

136. Lynch, M. (1993) Scientific Practice and Ordinary Action: Ethnomethodology and the social studies of science, edn. Cambridge: Cambridge University Press.

137. Mabogunje, A. (1980) The Development Process. A spatial perspective, edn. London: Hutchinson.

138. Mabogunje, A. (1968) Urbanization in Nigeria, edn. London: University of London Press.

139. Malnar, J.M. and Vodvarka, F. (1992) The Interior Dimension. A theoretical approach to enclosed space, New York, Bonn, London, Singapore, Victoria, Tokyo, Ontario: Van Nostrand Reinhold.

140. Mann, K. (1985) Marrying Well: Marriage, Status and Social Change among the Educated Elite in Colonial Lagos, edn. Cambridge, London, New York, New Rochelle, Melbourne, Sydney: Cambridge University Press.

141. Mann, M. (1994) Persons, Households, Families, Lineages, Genders, Classes and Nations. In: The Polity Press, (Ed.) The Polity Reader in Gender Studies, pp. 177-194. Cambridge and Oxford: The Polity Press in association with Blackwell Publishers]

142. Marafatto, M. (1983) Nigerian Brazilian Houses, Lagos: Istituto Italiano di Cultura.

143. March, L. and Steadman, P. (1971) The geometry of the environment, edn. London: The Roual Institute of British Architects Press.

144. Massey, D. (2000) Space, Place and Gender. In: Rendell, J., Penner, B. and Borden, I., (Eds.)

Gender Space Architecture: An interdisciplinary introduction, pp. 128-133. London: Routledge]

145. McC.Netting, R., Wilk, R.R. and Arnould, E.J. (1984) Introduction: Households-Comparative and Historical Studies of the Domestic Group. In: McC.Netting, R., Wilk, R.R. and Arnold, E.J., (Eds.) Households: Comparative and Historical Studies of the Domestic Group, pp. xiii-xxxviii Berkeley& Los Angeles, California. London, England: University of California Press Limited]

146. Mehta, B.J. (1999) Indo-Trinidadian Fiction: Female Identity and Creative Cooking. Alif: Journal of Comparatvie Poetics 151-184.

147. Mikell, G. (1997) African Feminism. The Politics of Survival in Sub-Saharan Africa. Mikell, G., (Ed.) Philadelphia, Pennsylvania: University of Pennsylvania Press.

148. Miller, D. (2001) Possessions. In: Miller, D., (Ed.) Home Possessions, pp. 107-121. Oxford: Berg]

149. Murray, R. (2002) How to write a thesis, edn. Buckingham: Open University Press.

150. Nabwire, C. and Montgomery, B.V. (1988) Cooking the African Way, edn. Minneapolis: Lerner Publications Company.

151. National Population Commission, A.N. (2000) Abuja, Nigeria: National Population Commission. United Nations Population Fund, U.S. Agency for International Development.

152. Neufert, E. (1980) Architects' Data. Second International Edition, edn. London, Toronto, Sydney, New York: Granada, Halsted Press, John Wiley & Sons.

153. Oakley, A. (1972) Sex, Gender and Society, edn. London: Temple Smith.

154. Oakley, A. (1974) The Sociology of Housework, edn. London: Martin Robertson.

155. Obafemi Awolowo University, Ife. Home page- Population of Obafemi Awolowo University - Staff and Students. Accessed 18.10. 2006. http://www.oauife.edu.ng/administration

156. Ogwu, N.E., Taiwo, K.A. and Ajibola, O.O. (2001) Assessment of household kitchen equipment: factors influencing its impact on food consumption in Nigeria. Technovation 21, 613-621.

157. Ojo, G.J.A. (1966a) Yoruba Culture. A Geographical Analysis, edn. Ife, London: University of Ife Press & University of London Press.

158. Ojo, G.J.A. (1966b) Yoruba Palaces, edn. Ife, London: University of Ife Press & University of London Press.

159. Ojofeitimi, E. and Olufokunbi, B. (1986) Food preferences: an implication for nutrition education and agricultural production. Food and Nutrition Bulletin 8,

160. Okigbo B (1980) Food and nutrition policy - The case for cassava in the humid tropics of West Africa. Food and Nutrition Bulletin 2,

161. Olatubara, C.A. (1998) An Alternative Approach to the Urban Residential Location Decision in Nigeria: The Nestling Idea. Habitat ITNL. Elsevier Science Ltd. Copyright 1997 22, 57-67.

162. Onokerhoraye, A.G. (1984) Social Services in Nigeria: An Introduction, edn. London, Boston and Melbourne: Kegan Paul International.

163. Oppong, C. (1975) Domestic Continuity and Change in Accra. In: Goody, J., (Ed.) Changing social structure in Ghana, pp. 181-200. London: International African Institute]

164. Oyediran, O. (1973) Position of the Ooni in the changing political systems of Ile-Ife. Journal of the Historical Society of Nigeria 4, 373-387.

165. Oyewumi, O. (2005) Colonizing Bodies adn Minds: Gender and Colonialism. In: Desai, G. and Nair, S., (Eds.) Postcolonialisms. An Anthology of Cultural Theory and Criticism, pp. 339-361. Oxford: Berg. Oxford International Publishers Ltd]

166. Ozaki, R. and Lewis, J.R. (2006) Boundaries and the meaning of social space: a study of Japanese house plans. Environment and Planning D: Society and Space 24, 91-104.

167. Pacey, P. (1994) Homemaking. In: The Polity Press, (Ed.) The Polity Reader in Gender Studies, pp. 143-149. Cambridge and Oxford: The Polity Press in association with Blackwell Publishers]

168. Parr, J. (2002) Modern Kitchen, Good home, Strong Nation. Technology and Culture 43, 657-667.

169. Parrinder, E.G. (1961) West African religion: illustrated from the beliefs and practices of Akan, Ewe, Yoruba, Ibo and Kindred peoples, edn. London: Epworth Press.

170. Peil, M. (1975) Female Roles in West African Towns. In: Goody, J., (Ed.) Changing social structure in Ghana: Essays in comparative sociology of a new State and an old tradition, pp. 73-90. London: International African Institute]

171. Polity Press (1994) Solidarity, Interaction and Social Practice. In: Polity Press, (Ed.) The Polity Reader in Social Theory, pp. 55-61. Cambridge: Polity Press]

172. Prussin, L. (1969) Architecture in Northern Ghana, edn. Berkley: University of California Press.

173. Psarra, S (2003) Top-down and bottom-up characterisations of shape and space. Hanson, J., (Ed.) Proceedings from the 4th International Space Syntax Synmposium 17th to 19th June 2003 . London, England: Space Syntax Laboratory.

174. Rapoport, A. (1969) Houseform and Culture, edn. New Jersey: Prentice-Hall.

175. Rapoport, A. (1990) Systems of activities and systems of settings. In: Kent, S., (Ed.) Domestic architecture and the use of space, pp. 9-20. Cambridge: Cambridge University Press]

176. Rapoport, A. (1980) Vernacular architecture and the cultural determinants of form. In: King, A.D., (Ed.) Buildings and Society, pp. 283-305. London: Routledge & Kegan Paul]

177. Rendell, J. (2000) Introduction: Gender Space . In: Rendell, J., Penner, B. and Borden, I., (Eds.) Gender Space Architecture: An interdisciplinary introduction, pp. 101-111. London: Routledge]

178. Revel, J.F (1992) – from Culture and Cuisine – in: Curtin D.&. and Heldke, L.M., (Eds.) Cooking, Eating, Thinking. Transformative philosophies of food, pp. 145 –152 & 244 – 250. Bloomington & Indianapolis: Indiana University Press Limited]

179. Richards, L. (2005) Handling Qualitative Data. A Practical Guide, edn. London: Sage Publications Ltd.

180. Robertson, C.C. (1984) Sharing the Same Bowl. A socioeconomic history of women and class

in Accra, Ghana, edn. Bloomington: Indiana University Press.

181. Salzman, C. (1986) Continuity and Change in the Culinary History of the Netherlands. 1945-75. Journal of Contemporary History 21, 605-628.

182. Schensul, J.J., LeCompte, M.D., Trotter, R.T.I., Cromley, E.K. and Singer, M. (1999) Mapping Social Networks, Spatial Data and Hidden Populations, edn. Walnut Creek, London, New Delhi: Altamira Press. A division of Sage Publications

183. Segal, W. (1948) Home and Environment, London: Leonard Hill Limited, 17 Stratford Place, W1.

184. Seo, K.W. (2005) Spatial Interpretation of Housing. The Role of Topological Intuition in the Evolution of Houses in Seoul. Unpublished PhD Thesis. University College London.

185. Seymour-Smith, M. (1975) Sex and Society, edn. London Syndey Auckland Toronto: Hodder and Stoughton.

186. Silva, Elizabeth B (2000) – The cook, the cooker and the gendering of the kitchen pp 612-628. From the Editorial Board of the Sociological Review 2000. Published by Blackwell Publishers, 108 Cowley Road, Oxford OX4 1JF, UK and 350 Main Street, Malden, MA 02148, USA

187. Skvoretz, J. (1998) Solidarity, Social Structure and Social Control. In: Doreian, P. and Fararo, T., (Eds.) The Problem of Solidarity. Theories and Models, pp. 373-402. The Netherlands: Overseas Publishers Association]

188. Soyinka, W. (1981) Ake. The years of childhood, edn. London: Methuen Publishing Limited.

189. Spain, D. (2000) Excerpts from 'The Contemporary Workplace'. In: Rendell, J., Penner, B. and Borden, I., (Eds.) Gender Space Architecture: An interdisciplinary introduction, pp. 118-127. London: Routledge]

190. Stanley, J. and Olaniyan, R. (1982) Ife, The Holy City of the Yoruba. An Annotated Bibliography, Ibadan, Nigeria: University of Ife Press.

191. Strom, S. (2002) Unemployment and Gendered Divisions of Domestic Labor. Acta Sociologica 2002 45, 89-106.

192. The Central Intelligence Agency. The CIA World Fact Book Country - Nigeria. 2004. 2004.

193. Thompson, K. (1985) Readings from Emile Durkheim, London: Routledge.

194. Torre, S. (2000) Claiming the Public Space: The Mothers of Plaza de Mayo. In: Rendell, J., Penner, B. and Borden, I., (Eds.) Gender Space Architecture: An interdisciplinary introduction, pp. 140-145. London: Routledge]

195. Trager, L. (2001) Yoruba Hometowns. Community, Identity, and Development in Nigeria, edn. Boulder, London: Lynne Rienner Publishers.

196. Tutt, P. and Adler, D. (1979) New Metric handbook, London: The Architectural Press.

197. Valentine, G. (1999) Eating in: home, consumption and identity. In: From the Sociological Review 1999 pp 491-524. Published by Blackwell Publishers, 108 Cowley Road, Oxford OX4 1JF, UK and 350 Main Street, Malden, MA 02148, US

198. Vischer, J.C. (2005) Space Meets Status. Designing workplace performance, edn. London

and New York: Routledge. Taylor and Francis Group.

199. Vlach, J.M. (1984) The Brazilian House in Nigeria: The Emergence of a 20th-Century Vernacular House Typ. The Journal of American Folklore 97, 3-23.

200. Weber, M. (1978) Economy and Society. Volumes 1 & 2, edn. Berkeley: University of California Press.

201. Webster, H.P. (1942) Taboo: A Sociological Study, edn. Stanford, London: Stanford University Press. California. London: Humphrey Milford. Oxford University Press.

202. Weissberg, R. and Buker, S. (1990) Writing Up Research. Experimental Research Writing Report for Students of English, edn. New Jersey: Prentice-Hall, Inc.

203. Weissman, L.K. (1994) Discrimination by Design: a feminist critique of the man-made environment, Chicago: University of Illinois Press.

204. Whitelegg, E., Arnot, M., Bartels, E., Beechey, V., Birke, L., Himmelwert, S., Leonard, D., Ruehl, S. and Speakman, M.A. (1982) The Changing Experience of Women, edn. London: Basil Blackwell in associaotion with the Open University.

205. Wilk, R.R. (1990) The built environment and consumer decisions. In: Kent, S., (Ed.) Domestic architecture and the use of space. An interdisciplinary cross-cultural study, pp. 34-42. Cambridge: Cambridge University Press]

206. Wilk, R.R. and McC.Netting, R. (1984) Households: Changing forms and functions. In: McC.Netting, R., Wilk, R.R. and Arnold, E.J., (Eds.) Households: Comparative and Historical Studies of the Domestic Group, pp. 1-28. Berkeley& Los Angeles, California. London, England: University of California Press Limited]

207. Williams, T.I. (1999) A History of Invention. From stone axes to silicon chips, London: Little, Brown & Company.

208. Wood, R. (1996) History of Food and Cooking, edn. Hove, England: Wayland (Publishers) Limited.

209. www.gazetteer.com. Current population for Cities and Towns of Nigeria. Date of Access: 12 January 2004.

210. www.mbendi.co.za/cyngmps.gif. Map of Nigeria. Date of access: 25.11.2006

211. Zuckerman, L. (1998) The Potato. From the Andes in the sixteenth century to fish and chips, the story of how a vegetable changed history., edn. London: Macmillan.

Appendices

1. Sample Questionnaire
2. Field Notes
3. Questionnaire Responses
4. Rank Order of Integration
5. House/ Activity/ Storage / Space Matrices
6. Step Distance Data and Integrated to Segregated Spaces Ratio
7. House Plans and Integration mapping

APPENDIX One: Questionnaire for Zones A, B & C

Identification:

1. Zone/Street……
2. Position of respondent in household……
3. Sex of respondent: Male……. / Female…….
4. Population: Adult: male……..female……
   Teenage: male……..female……...
   Child: male……..female……
   Elderly: male……..female……
5. Ethnic origin of household……..
6. Occupation of household head……
7. Occupation of any other person/s in household…….
8. Household Structure: Extended family…….Nuclear family…. .Multi-family……...
9. Features of house: Fully detached…….Semi-detached……Other(specify)……

Infrastructure:

1. *Source of fuel/energy* Electricity Gas Kerosene
   (please circle) Firewood Coal Other(specify)……..
2. *Source of water* Well Tap
   (please circle) Stream Other(please specify)……
3. *Source of Light* Stream Other(please specify)……
   (please circle) Natural Artificial(please specify)……..
4. *Type of Draianage* Open gutter Covered gutter
   (please circle) Underground pipes Other……

Locus

1. Who does the cooking?……
2. Apart from the above, who else participates in cooking?……..
   Why them, if applicable……..
3. Where do you cook everyday?……
4. Where do you cook for special occasions? ……
5. If you use a different space for special occasions, Why? …….
   When would you use outdoor spaces if applicable? …….
6. What time do you cook breakfast if applicable? ……
6a Why?(i.e. why not later or earlier?)…….
7. What time do you cook lunch if applicable?……
7a Why?(i.e. why not later or earlier?)…….
8. What time do you cook dinner if applicable? …….
8a Why?(i.e. why not later or earlier?)…….
9. Where do you eat your meals and why? …….
9a Where do others in the household have their meals and why?……
9b Where else would you eat your meals?…….
9c Where would you not eat your meals and Why? ……
10. Where would you process food, if applicable(i.e.making of pap-*ogi)*……..
10a Is this acceptable? ……. Why? ……
11. How/ where do you dispose of rubbish/ waste? ……
11a Why? ……
12. Where do you wash dishes/ pots? …….
12a Why? ……..

Implements and facilities:

Please could you circle below which implement / facility you have and clarify why/when you use it

When & Why How often

1. Grinding stone- *olo:* ……
2. Mortar & Pestle-*odo & omo-ori-odo* ……
3. Calabashes – *igba* ……..
4. Baskets – *apere* ……..
5. Urns – *amu* ……
6. Electrical appliance: blender/mixer ……..
7. Electrical appliance: yam pounder ……
8. Other implement/appliance not stated above ……
9. Electrical range ……..
10. Gas range ……...
11. Kerosene stove……
12. Coal pot ……
13. Firewood range – *adogan* ……
14. Oven ……..
15. Microwave oven ……
16. Other ……..

Storage:

Where do you keep the items below and why?

1. Perishable foods (e.g. raw meat) ……
2. Nonperishable foods (e.g. canned foods) ……
3. Uncooked foods (e.g. tubers-yam) ……..
4. Cooked food ……
5. Grains ……..
6. Fruits ……
7. Vegetables ……...
8. Ingredients (spices, oil) ……..
9. Cooking utensils (pots, knives) ……
10. Cooking implements (grinder, mortar/pestle) ……..
11. Electrical appliances ……
12. Utensils used for ceremonial / elaborate cooking ……..
13. Other item not stated above ……

Opinions & Preferences:

1. What do you think of your cooking space?
   Very Good Good Average Poor Very Poor

2. What do you like most about your cooking space and Why? …….
   ……

3. What do you dislike most about your cooking space and Why?
   ……

4. Would you entertain friends whilst in the cooking space ……
   If yes, why? ……
   If not, why not?……..……

5. Who in your opinion should cook? (please circle):
   a/ Female Male Both
   why? ……
   b/ Parent Adult/Teenage child Both

why? ……

6. Would you consider the cooking space as:
   (please circle) Public space Private space
   Why? ……

7. Would you eat in the cooking space: (please circle)
   Yes. If yes, why? ……

   No. If no, why? ……

8. What other household activity (e.g. laundry) would you do in the kitchen(cooking space)&why
   ……

9. What household activity would you not do in the kitchen (cooking space) & why ……..
   ……

Please write below any other information about your cooking space or culinary practice not mentioned above

……
……
……
……
……
……
……
……

……

Thank you very much for your co-operation in this research. Folake Opeyemi EKUNDAYO 1995

APPENDIX - FIELD NOTES

ZONE A: ENUWA

1. Kitchen collapsed; roof caved in
2. Part of the same family compound as (1) above. Communal kitchen collapsed; house used for specific cooking; farms and sells food; uses neighbour's fridge, cooks outside; dislike windiness but likes the emission of smoke.
3. Closeness of water source for food processing; dishwashing in a bowl of water; electric sockets for cooking and boiling water; considers it a taboo to eat in kitchen
4. Occupation – retired judge (civil servant); uses grinding stone for specific foods and stores items in the roof loft
5. Polygynous household; uses roof loft for store and pantry
6. Would eat in the veranda at night; keeps opened canned foods in cold water - fresh
7. Meat is dried for preservation
8. Members of the Awura family compound; only cooked perishables are kept in fridge / freezer (not raw); landlord keeps livestock (goats) in the yard.
9. Other occupation – traditional doctor (designated under smith/craft); considers kitchen to be a private place as a precaution against poisoning
10. Polygynous house, 2 wives cooking; uses clay urns as they keep water cooler than plastic jerry cans
11. Cooks in the kitchen and orowa; male respondent; believes females are better cooks.
12. Two set of cooking areas; extended family home; grandmother cooks separately
13. No notes
14. No notes
15. Commercial cooking in the front yard; 2 places for cooking daily; Note: respondent likes the segregation of cooking area to ensure privacy from nosy neighbours
16. Polygynous household – 2 wives; fetches water from communal tap just before cooking; uses firewood daily for commercial cooking; not willing to respond fully
17. Tenants in extended family; commercial – alcohol brewer and seller
18. No notes
19. Tenant washes dishes next to private taps
20. No notes
21. No notes
22. Livestock farmer, butcher; polygynous household
23. No electricity supply
24. No notes
25. Polygynous household

ZONE B – AKARABATA AND OJOYIN

26. No notes
27. No notes
28. No notes
29. Dishwashing in the backyard; keeps livestock; dislikes proximity of well due to laundry taking place there
30. Son cooks, daughter is too young; eats in kitchen; no fridge
31. Female household head; keeps fridge in bedroom; no electric socket in kitchen
32. Tailor with shop below accommodation; eats in shop; designated kitchen for individual households exclusively nevertheless keeps fridge in living room.
33. Backyard is waterlogged; frontyard used for ceremonial cooking, food processing takes place in backyard; keeps yams under bed because of goats.
34. Incompatible activities with cooking – dishwashing and eating
35. Incompatible activities with cooking – dishwashing and laundry
36. Flats – dislikes use of firewood in indoor kitchen; buys lunch; dishwashing is forbidden in kitchen; no electricity, water, lighting in the kitchen
37. No notes
38. Male respondent – says only females should cook; likes size & layout of the kitchen
39. No notes
40. Also uses orowa and outdoor kitchen; eat in kitchen as well
41. Respondent says cooking is a female task as men go out to work and are incapable of working in the kitchen
42. Mother and child only household; spouse in Lagos; also cooks and sells amala (starts 8.00 a.m.), uses kerosene for personal cooking & coal for commercial cooking; keeps yams on raised planks in kitchen.
43. Goats bred in backyard so it is considered unclean
44. Lives on first floor and cooks in first floor front veranda or balcony
45. Polygynous household; male respondent eats at 8 a.m. but does not know what time the women cook!! Foodprocessing in the backyard; has a commercial grinder; dislikes soot on wall; desires a modern kitchen with in-built infrastructure
46. Grocer living in premises; cooks and eats in shop; fries meat to preserve it
47. Uses coal, firewood and kerosene regularly; university admin/ technical staff; no sink but washes dishes in kitchen
48. Small house in the backyard
49. No notes
50. No notes

ZONE C: UNIVERSITY CAMPUS

51. Does not eat in bedroom because of pests
52. No notes
53. Does not eat in bedroom due to pests and vermin; no ironing in kitchen
54. Gas used for frying and pressure cooker because of danger with electric cooker
55. C-split level; uses courtyard as well
56. Daughter cooks because sons have to study
57. Kitchen store is too small so utensils and food stored in the study and bedrooms
58. Dislikes proximity of toilet to kitchen
59. No notes
60. No notes
61. Food processing at local mill; calabash used for fufu making
62. Washing machine in kitchen; everyone must cook except the father
63. Used indoor kitchen for cooking at daughter's graduation
64. Respondent lives with a relative; adult children have left home; cooks lunch earlier on Saturdays; less bulk food stored means fewer pests and vermin; taps broken
65. Adult children are married; mother widowed; dislikes outside store and lack of ventilation in store; reads in kitchen to continuously monitor the cooking
66. No cooking in mornings; eats cereals; washing machine in study but not connected
67. Hot plate with microwave used; complains of inefficiency of waste disposal services
68. No notes
69. Entertaining friends in the kitchen is not decent
70. Does not eat in kitchen; respondent is housemaid; ceremonial utensils in garage
71. Children are infants; uses yam flour for making pounded yam; would eat in the kitchen if there was more space
72. Extended family with female household head; adult children living away from home; wards in BQ; keeps canned foods in bedroom to prevent wastage; washes large pots in outside tank as kitchen sink is too small.
73. Mother and children eat in kitchen at breakfast bar in kitchen; uncle, dad and grandmother eat in dining; launders and irons in kitchen
74. Respondents are Ekiti – unacceptable to own a yam pounder!! Stores yams and grains in bedroom to ration and control use; if there was a washing machine, it would be kept in bathroom
75. Ceremonial cooking in BQ area for privacy and restricted visibility from the approach road; converted car porch to kitchen utility room; cooking at weekends; stored in freezer in small packs for defrosting during the week; cereals for breakfast

QUESTIONNAIRE RESPONSES

Frequency Distribution of Responses on 75 houses

The following tables show the frequency of the responses to the questions asked during the field survey. They have been categorised under the three sample areas of twenty-five houses each. Not all questions have responses from all seventy-five households, and they have not been included in the calculations of percentage of response. Due to the size of the sample, the percentage values for each of the zones would seem exaggerated in some tables, so the actual numbers will be a better guide of the distribution.

Seventy-five households were interviewed from three samples with the distribution as follows:

- Zone A: Enuwa- 25 households
- Zone B: Akarabata – 16 households; Ojoyin – 9 households
- Zone C: Obafemi Awolowo University Staff quarters- 25 households

The percentages in the columns and rows add up to 100%for each sample in the columns and each variable in the rows.

QUESTIONNAIRE RESPONSES FOR ZONES A, B & C

Q1. RESPONDENTS

Of all the respondents, 65no were female, 10no were male

Distribution as follows:

- Male: Father = 4no, Son = 4no, Other male = 2no: **Total = 10no**
- Female: Mother = 42no, Daughter = 19no, Other female = 4no: **Total = 65no**

Q2. ETHNIC ORIGIN

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Yoruba - Ife	16	64 %	5	20 %			21	28 %
Yoruba - Modakeke			2	8 %			2	2.67 %
Yoruba - Egba					4	16 %	4	5.33 %
Yoruba - Ijebu			1	4 %			1	1.33 %
Yoruba - Ekiti / Ondo			6	24 %	2	8 %	8	10.67 %
Yoruba - Ijesha	1	4 %	3	12 %	1	4 %	5	6.67 %
Yoruba - Oyo / Osun	3	12 %	2	8 %	7	28 %	12	16 %
Yoruba - Eko					1	4 %	1	1.33 %
Yoruba / other	3	12 %	6	24 %	9	36 %	18	24 %
Hausa								
Ibo / Calabar								
Benin / Delta	2	8 %			1	4 %	3	4 %

Q3. INFRASTRUCTURE

Q 3.1 Electricity

Q 3.1.1. Artificial lighting source 1

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Electric lighting	17	68 %	20	80 %	25	100%	62	82.6 %
Kerosene lamps	3	12 %	3	12 %			6	8 %
Oil lamps	1	4 %	1	4 %			2	2.66 %
No response	*4*	*16 %*	*1*	*4 %*			*5*	*6.67 %*

Q 3.1.2 Artificial lighting source 2

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Kerosene lamps	2	8 %	5	20 %	10	40 %	17	22.6 %
Gas lamps	1	4 %			2	8 %	3	4 %
Candles			1	4 %	1	4 %	2	2.67 %
No response	*22*	*88 %*	*19*		*12*	*48 %*	*53*	*70.6 %*

Q 3.2 Drainage

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Open gutters	23	92 %	22	88 %			45	60 %
Covered gutters			3	12 %			3	4 %
Underground drains					25	100%	25	33.3 %
Surface run-off	2	8%					2	2.67 %

Q 3.3 Water

Q 3.3.1: Source of water 1

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Well	15	60 %	16	64 %			31	41.3 %
Tap/private	1	4 %	7	28 %	24	96 %	32	42.6 %
Tap/communal	8	32 %	2	8 %			10	13.3 %
Reservoir tank					1	4 %	1	1.33 %
Tanker	1	4 %					1	1.33 %

Q 3.3.2: Alternative source of water

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Stream / river	1	5.9%	3	15%			4	8%
Well	1	5.9%	3	15%			4	8%
Tap/communal	15	88.2%	13	65%			28	56%
Tank					13	100%	13	26%
Tanker			1	5%			1	2%
No response	*8*		*6*		*12*		*26*	

Q4: HOUSEHOLD DEMOGRAPHY

Q4.1 Household Structure

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Nuclear – single family	4	16 %	12	48 %	22	88 %	38	50.6 %
Extended family	10	40 %	4	16 %	3	12 %	17	22.6 %
Multi family structure	6	24 %	9	36 %			15	20 %
Polygynous family	5	20 %					5	6.67 %

Q 4.2. Occupation

Q 4.2.1 Occupation of head of the household

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Farming	9	36 %	1	4 %			10	13.3 %
Trading	10	40 %	12	48 %			22	29.3 %
Smith / Craft			3	12 %			3	4 %
Civil servant	5	20 %	5	20 %			10	13.3 %
University: Admin.			1	4 %	2	8 %	3	4 %
University: Academic					21	84 %	21	28 %
Teaching	1	4 %	1	4 %	1	4 %	3	4 %
Medical			1	4 %	1	4 %	2	2.67 %

Q 4.2.2 Occupation of the 2nd most senior member of the household

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Farming	1	4 %					1	1.67 %

Trading	14	56 %	8	32 %	3	12 %	25	33.3 %
Smith/ Craft	2	8 %	5	20 %			7	28 %
Civil servant	2	8 %	3	12 %	1	4 %	6	8 %
University: Admin.					2	8 %	2	2.67 %
University: Academic					6	24 %	6	8 %
Teaching			3	12 %	5	20 %	8	10.67 %
Medical					3	12 %	3	4 %
Student	2	8 %			4	16 %	6	8 %
No response	*4*	*16 %*	*6*		*1*		*11*	*14.67%*

Q5. THE KITCHEN, COOKING AND CULINARY PRACTICES

Q5.1 The location of cooking space for daily use

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Indoor – kitchen	5	20%	7	28%	25	100%	37	49.3%
Outdoor – kitchen	4	16%	10	40%			14	18.7%
Hallway	13	52%	6	24%			19	25.3%
Frontyard	2	8%	2	8%			4	5.3%
Backyard	1	4%					1	1.3%

Q 5.2 The location of cooking space for ceremonial cooking

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Indoor kitchen			1	4%	2	8%	3	4%
Outdoor kitchen	2	8%	5	20%			7	9.3%
Frontyard	13	52%	6	24%			19	25.3%
Backyard	9	36%	13	52%	23	92%	45	60%
No response	*1*	*4%*					*1*	*1.33%*

ROLES: GENDER AND AGE

Q 5.3 Who is the main cook?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Mother	20	80 %	19	76 %	22	88 %	61	81.33%
Daughter	4	16 %	5	20%	1	4 %	10	13.33%
Maid					2	8 %	2	2.67%
Son			1	4%			1	1.33%
No response	*1*	*4 %*					*1*	*1.33%*

Q 5.4 Who assists in cooking?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Mother	4	16 %	4	16 %	2	8 %	10	13.33%
Daughter	20	80 %	15	60 %	16	64 %	51	68 %
Maid					1	4 %	1	1.33 %
Son	1	4 %	4	16 %	1	4 %	6	8 %
Father					1	4 %	1	1.33 %
Other			1	4 %			1	1.33 %
No one					4	16 %	4	5.33 %

Q 5.5 Who should cook; male or female?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Female	14	56 %	12	56 %	5	20 %	31	41.3 %
Male								
Both	11	44 %	13	52 %	20	80%	44	58.7 %

Q 5.5.1 Who should cook; male or female and why?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Female task	14	70%	13	56.5%	6	26.1%	33	50%
Joint responsibility	5	25%	5	21.7%	16	69.6%	26	39.4%
Unmarried males	1	5%	5	21.7%	1	4.4%	7	10.6%

Q 5.6.1 Who should cook; parent or child

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Parent			1	4.6 %	5	20.8 %	6	9 %
Adult/teenage child	14	66.7 %	13	59.1 %	4	16.7 %	31	46.3 %
Both	7	33.3 %	8	36.4 %	15	62.5 %	30	44.8 %

Q 5.6.2 Who should cook; parent or child and why?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Parent's responsibility			2	10.5%	4	20%	6	10.5%
To groom child for adulthood	4	22.2%	5	26.3%	1	5%	10	17.5%
Child under supervision	11	61.1%	11	57.9%	8	40%	30	52.6%
Joint responsibility	3	16.7%	1	5.3%	7	35%	11	19.3%

COOKING TIMES

Q 5.7.1 What time do you prepare breakfast?

Time	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
5 a.m. to 6 a.m.	2	8.3%	6	24%	1	4.5%	9	12.7%
6 a.m. to 7 a.m.	9	37.5%	12	48%	10	46.5%	31	43.7%
7 a.m. to 8 a.m.	6	25%	6	24%	8	36.4%	20	28.2%
8 a.m. to 9 a.m.	7	29.2%	1	4%	3	13.6%	11	15.5%

Q 5.7.2 What time do you prepare lunch?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Noon to 1 p.m.	5	20.8%	9	36%	2	8.7%	16	22%
1 p.m. to 2 p.m.	8	33.3%	8	32%	7	30.4%	23	31.9%
2 p.m. to 3 p.m.	9	37.5%	6	24%	11	47.8%	26	36.1%
3 p.m. to 4 p.m.	1	4.2%	1	4%	3	13%	5	6.9%
No lunch	1	4.2%	1	4%			2	2.8%

Q 5.7.3 What time do you prepare the evening meal?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
6 p.m. to 7 p.m.	6	24%	15	60%	10	41.7%	31	41.9%
7 p.m. to 8 p.m.	14	56%	7	28%	9	37.5%	30	40.5%
8 p.m. to 9 p.m.	5	20%	3	12%	4	16.7%	12	16.2%
9 p.m. to 10 p.m.					1	4.2%	1	1.4%

EATING

Q 5.8.1 Where do you eat?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Living room/reception	15	60%	22	88%			37	49.3%
Dining room					24	96%	24	32%
Indoor kitchen					1	4%	1	1.3%
Front veranda	1	4%					1	1.3%
Orowa	4	16%					4	5.3%
Room (iyara)	5	20%	3	12%			8	10.7%

Q 5.8.2 Where else do you eat?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Living room / reception					17	77.3%	17	28.8%
Indoor kitchen					2	9.1%	2	3.4%
Outdoor kitchen			1	5.6%			1	1.7%
Veranda	6	31.6%	8	44.4%			14	23.7%
Orowa	7	36.8%	4	22.2%			11	18.6%
Room (iyara)	6	31.6%	3	16.7%	3	13.6%	12	20.3%
Other			2	11.1%			2	3.4%

Q 5.8.3 Where would you not eat?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Living room					1	5.3%	1	1.7%
Outside			4	17.4%			4	6.7%
Indoor kitchen	1	5.6%	2	8.7%	3	15.8%	6	10%
Outdoor kitchen	2	11.1%	1	4.4%			3	5%
Veranda/ Courtyard	4	22.2%	9	39.1%	1	5.3%	14	23.3%
Backyard	7	38.9%	4	17.4%			11	18.3%
Orowa/Hallway	1	5.6%	1	4.4%			2	3.3%
Bedroom					9	47.4%	9	15%
Bathroom	3	16.7%	2	8.7%	5	26.3%	10	16.7%

Q 5.8.4 Would you eat in the cooking space?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Yes/ space is clean	8	32 %	8	32 %	6	24 %	22	29.3 %
Yes/ when in a hurry	1	4 %	3	12 %	5	20 %	9	12 %
No/ not a tradition	12	48 %	9	36 %	11	44 %	32	42.7 %
No/ space is unclean	3	12 %	4	16 %	3	12 %	10	13.3 %
No response	*1*	*4 %*	*1*	*4 %*			*1*	*1.33 %*

LOCUS & COMPATIBILITY / INCOMPATIBILITY WITH OTHER ACTIVITIES

Q 5.9.1 What activities would you not do in the cooking space

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Laundry	14	56 %	15	60 %	14	56 %	43	57.3 %
Dishwashing	1	4 %	1	4 %			2	2.6 %
Hairdressing					3	12 %	3	4 %
Ironing / Study					2	8 %	2	2.6 %
All but cooking	1	4 %	3	12 %	3	12 %	7	9.33 %
No response	*9*	*36 %*	*6*	*24 %*	*3*	*12 %*	*18*	*24 %*

Q 5.9.2 Where do you wash dishes?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Kitchen	2	8 %	1	4 %	25	100%	28	37.3 %
Yard	8	32 %	7	28 %			15	20 %
Veranda	8	32 %	3	12 %			11	14.7 %
No response	*7*	*28 %*	*14*	*56 %*			*21*	*28 %*

Q 5.9.3 Where do you carry out food processing?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Kitchen :indoor/outdoor	2	9.52%	4	16.7%	7	36.8%	13	20.3%
Hallway/Orowa	14	66.7%	8	33.3%			22	34.4%
Backyard/Kitchen yard	4	19.4%	8	33.3%	9	47.4%	21	32.8%
Veranda			3	12.5%			3	4.7%
Boys Quarters					1	5.3%	1	1.6%
Courtyard					2	10.5%	2	3.1%
Other	1	4.8%	1	4.2%			2	3.1%
Total	21		24		18		64	

Q 5.9.4 Where do you dispose off rubbish/waste?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Common dump	4	16 %	3	12 %			7	9.3 %
Dustbin in kitchen			1	4 %	23	92 %	24	32 %
Drum in Orowa	10	40 %					10	13.3 %
Burnt daily	2	8 %	5	20 %	2	8 %	9	12 %
Flowing stream	5	20 %	1	4 %			6	8 %
No response	4	16 %	15	60 %			19	25.3 %

ENERGY / FUEL

Q6.1 What fuel is used for cooking?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Electricity	2		3		21		26	
Gas (Petroleum)	2		4		23		29	
Kerosene	22		23		17		62	
Firewood	18		14		9		42	
Coal	4		4		10		17	
Sawdust			1				1	
Total	**48**		**49**		**80**		**177**	

Note: Zone A and B have approximately two alternative sources of fuel per household whilst Zone C had over three alternatives per household, thus giving a frequency total greater than seventy-five

Q 6.2 Electric range

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Daily	1	4 %			17	68 %	18	24 %
Contingency					3	12 %	3	4 %
Ceremonial cooking								
Specific foods			1	4 %			1	1.3 %
Not used	24	96 %	24	96 %	5	20 %	53	74.6 %

Q 6.3 Gas range

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Daily	3	12 %			6	24 %	9	12 %
Contingency	1	4 %			17	68 %	18	24 %
Ceremonial cooking			1	4 %			1	1.3 %
Specific foods			1	4 %	1	4 %	2	2.67%
Not used	21	84 %	23	92 %	1		45	60%

Q 6.4 Kerosene stove

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Daily	21	84 %	24	96 %	5	20 %	50	66.6 %
Contingency	1	4 %	1	4 %	13	52 %	15	20 %
Ceremonial cooking								
Specific foods								
Not used	3	12 %			7	28 %	10	13.3 %

Q 6.5 Coal pot

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Daily	3	12 %	4	16 %	1	4 %	8	10.6 %
Contingency	1	4 %			4	16 %	5	6.67 %
Ceremonial cooking								
Specific foods	4	16 %	2	8 %	7	28 %	13	17.3 %
Not used	17	68 %	19	76 %	13	52 %	49	65.3 %

Q 6.6 Firewood range

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Daily	4	16 %	4	16 %			8	10.6 %
Contingency					1	4 %	1	1.33 %
Ceremonial cooking	15	60 %	18	72 %	18	72 %	51	68 %
Specific foods	4	16 %	2	8 %			6	8 %
Not used	2	8 %	1	4 %	6	24 %	9	12 %

Q 6.7 Microwave Oven

Only 9 households in Zone C used the microwave oven, and mainly to warm up left –overs. Few processed or pre-cooked meals are available in Ile-Ife as they would be expensive imports.

USE OF TRADITIONAL IMPLEMENTS, ELECTRONIC AIDS & APPLIANCES

Q 7.1 How often do you use the grinding stone?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Main implement	18	72 %	18	72 %	1	4 %	37	49.3 %
Contingency	1	4 %	7	28 %	8	32 %	16	21.3 %
Specific foods	5	20 %			4	16 %	9	12 %
Not used	1	4 %			12	48 %	13	17.3 %

Q 7.2 How often do you use the mortar and pestle?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Pounded yam (iyan)	20	80 %	23	92 %	20	80 %	63	84 %
Pepper/okra grinding	1	4 %					1	1.3 %
Beans (crushing)	1	4 %					1	1.3 %
Ceremonial cooking	3	12 %	1	4 %			4	5.3 %
Not used					2	8 %	2	2.6 %

Q 7.3 Use of electronic aids and appliances

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Mixer / Blender			5	20 %	23	92 %	28	37.3 %
Industrial blender	1	4 %	6	24 %				
Not used	24	96 %	14	56 %	2	8 %	47	62.7 %

STORAGE OF FOOD AND COOKING UTENSILS

FOOD

Q 8.1 Perishables – Meat, fish, dairy products

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Fridge / freezer	10	40 %	19	76 %	25	100 %	54	72 %
Cooked at once	9	36 %	6	8 %			15	20 %
Cupboard in room	1	4 %					1	1.3 %
Cupboard in kitchen								
Sun dried / fried	4	16 %					4	5.3 %

Q 8.2 Non-perishables – canned foods

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Fridge / freezer	7	28 %	4	16 %	1	4 %	9	12 %
Cupboard- bedroom	9	36 %	9	36 %	7	28 %	25	33.3 %
Cupboard – kitchen			9	36 %	7	28 %	25	33.3 %
Store / Pantry / Loft	1	4 %	2	8 %	7	28 %	10	13.3 %
Other	1	4 %						
Not used	7	28 %	1	4 %	3	12 %	6	8 %

Q 8.3 Cooking ingredients : spices, sauces, garnishes etc.

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Fridge / freezer			1	4 %	1	4 %	2	2.67 %
Cupboard – bedroom	15	60 %	14	56 %			29	38.6 %
Cupboard – kitchen	6	24 %	9	36 %	18	72 %	33	44 %
Store / Pantry / Loft	2	8 %	1	4 %	6	24 %	9	12 %
Not used	2	8 %					2	2.67 %

COOKING UTENSILS

Q 8.4 Cooking utensils – pots, pans, ladles etc.

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Kitchen: Indoor	1	4 %	5	20 %	24	96 %	30	40 %
Kitchen: Outdoor	3	12 %	7	28 %			10	13.3 %
Store/Pantry / Loft	3	12 %	1	4 %	1	4 %	5	6.7 %
Orowa / Hallway	5	20 %	3	12 %			8	10.7 %
Room (iyara)	13	52 %	9	36 %			22	29.3 %

Q 8.5 Where do you keep electronic aids and appliances?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Kitchen : Indoor			1	4 %	19	76 %	20	26.6%
Store / Pantry / Loft	1	4 %			4	16 %	5	6.67%
Orowa / Hallway			1	4 %			1	1.33%
Room (iyara)	10	40 %	8	32 %	1	4 %	9	12 %
Not applicable	14	56 %	15	60 %	1	4 %	40	53.3%

Q 8.6 Where do you store traditional cooking utensils?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Kitchen : Indoor	4	16 %	6	24 %	16	64 %	26	34.6%
Kitchen: Outdoor	4	16 %	8	32 %			12	16 %
Store / Pantry / Loft	1	4 %	2	8 %	6	24 %	9	36 %
Yard	4	16 %			2	8 %	6	8 %
Orowa	12	48 %	8	32 %			20	26.6 %
Room (iyara)			1	4 %			1	1.4 %

Q 8.7 Where do you keep ceremonial cooking utensils?

	ZONE A		ZONE B		ZONE C		TOTAL	
	No	%	No	%	No	%	No	%
Kitchen : Indoor	1	4 %	2	8 %	2	8 %	5	6.67%
Kitchen : Outdoor	1	4 %	6	24 %			7	9.33 %
Store / Pantry / Loft	10	40 %	8	32 %	9	36 %	27	36 %
Kitchen yard/Courtyard	4	16 %	3	12 %	1	4 %	8	10.6 %
Orowa	2	8 %					2	2.67 %
Room (iyara)	1	4 %	3	12 %			4	5.33 %
Boys Quarters					9	36 %	9	12 %
Garage					1	4 %	1	1.4 %
Not stored	6	24 %	3	12 %	3	12 %	12	16 %

APPENDIX FOUR

RANK ORDER OF INTEGRATION AND SPACE LABELS FOR 75 Houses.

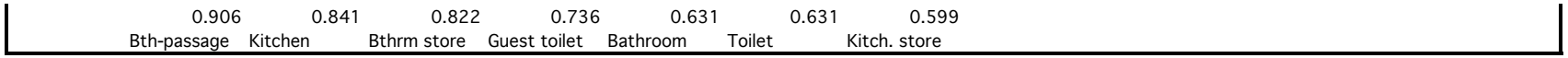
House 1	2.933	1.898	1.698	1.195	1.195	1.113	0.978	0.922	0.922
Names 1	orowa	backyard	threshold	bathroom	bedroom	outside	shed/utility	parlour	toilet
House 2	2.598	2.273	1.137	1.01	0.957	0.957	0.674		
Names 2	orowa	backyard	front veranda	bedroom	store	bathroom	outside		
House 3	3.318	1.896	1.206	1.021	1.021	0.829	0.829	0.664	
Names 3	orowa	backyard	front veranda	bedroom	parlour	toilet	bathroom	outside	
House 4	2.158	2.157	1.362	1.294	1.233	1.091	0.863	0.863	0.835
Names 4	orowa	stairs	back veranda	threshold	kitchen	bedroom	store	store	outside
House 5	2.612	1.959	1.119	0.979	0.979	0.712	0.653		
Names 5	orowa	entrance hall	backyard	shop	bedroom	outside	bathroom		
House 6	2.238	1.045	1.045	0.922	0.922	0.627	0.627		
Names 6	orowa	outside	backyard	parlour	bedroom	shed/utility	shop		
House 7	2.057	1.515	0.927	0.866	0.791	0.791	0.568		
Names 7	orowa	back veranda	bedroom	backyard	kitchen	outside	shed/utility		
House 8	1.951	1.917	1.273	1.126	0.976	0.934	0.813		
Names 8	entrance hall	orowa	outside	shop	parlour	bedroom	backyard		
House 9	1.92	0.957	0.938	0.909	0.909	0.866	0.791	0.606	
Names 9	orowa	backyard	front veranda	parlour	shop	bedroom	outside	kitchen	
House 10	1.523	1.51	1.125	1.035	0.859	0.835	0.809	0.809	0.616	0.488
Names 10	stairs	parlour	kitchen	Hallway	bedroom	front veranda	backyard	shop	outside	bathroom
House 11	1.894	1.89	1.386	1.327	1.083	0.891	0.891	0.891	0.866	0.817
Names 11	orowa	stairs	back veranda	entrance hall	bedroom	toilet	bathroom	backyard	outside	parlour
House 12	2.247	1.239	1.07	1.009	0.981	0.673	0.547			
Names 12	orowa	backyard	front veranda	bedroom	kitchen	outside	shed/utility			
House 13	1.567	1.306	0.979	0.871	0.812	0.564				
Names 13	orowa	front veranda	outside	backyard	bedroom	shop				
House 14	1.585	1.113	1.104	1.104	0.893	0.752	0.721	0.552		
Names 14	orowa	bedroom	backyard	front veranda	parlour	kitchen	outside	store		
House 15	4.435	1.267	1.267	0.986	0.986	0.634	0.634	0.634		
Names 15	orowa	backyard	front veranda	bedroom	parlour	outside	kitchen	kitchen		
House 16	1.445	1.438	0.993	0.97	0.839	0.707	0.535			
Names 16	orowa	stairs	front veranda	backyard	bedroom	outside	kitchen			
House 17	2.957	1.478	1.109	0.887	0.887	0.682	0.682	0.591		
Names 17	hallway	beer parlour	front veranda	backyard	bedroom	kitchen	store	outside		
House 18	2.054	1.106	0.885	0.885	0.829	0.632	0.632			
Names 18	orowa	front veranda	bedroom	backyard	parlour	shop	outside			
House 19	2.929	2.396	1.551	1.146	1.054	1.054	0.909	0.879		
Names 19	orowa	backyard	entrance hall	bedroom	store	bathroom	outside	shop		

House 20	4.546	2.021	1.399	1.212	0.957	0.758							
Names 20	orowa	entrance hall	backyard	bedroom	shop	kitchen							
House 21	2.045	1.991	1.324	1.125	1.125	1.02	0.833	0.833					
Names 21	stairs	orowa	back veranda	outside	kitchen	bedroom	store	backyard					
House 22	3.318	1.896	1.206	1.021	1.021	0.829	0.664						
Names 22	orowa	backyard	front veranda	bedroom	parlour	store	outside						
House 23	8.787	2.028	1.757	1.551	0.976	0.976	0.909						
Names 23	orowa	backyard	front veranda	bedroom	toilet	bathroom	outside						
House 24	6.937	1.892	1.387	1.387	1.387	0.905	0.905						
Names 24	courtyard	entrance way	bathroom	store	bedroom	outside	kitchen						
House 25	1.787	1.098	1.047	1.023	1	0.918	0.763	0.714	0.714	0.714	0.677		
Names 25	orowa	front veranda	backyard	bedroom	parlour	store	outside	toilet	bathroom	kitchen	shop		
House 26	1.313	1.265	1.265	1.221	1.18	1.141	1.072	1.04	1.01	0.981	0.981	0.905	
Names 26	Backyard	Bck stair	Low-hall	Landing	Balcony	Up-hall	Veranda	Outside	Sideyard	Frt stair	Balcony	bthr	
	0.905	0.905	0.882	0.882	0.882	0.882	0.882	0.882	0.882	0.882	0.882	0.882	
	Toilet	Kitchen	br	br	br	br	br	br	br	br	br	br	
	0.882	0.882	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	
	br	br	br	br	br	br	br	br	br	br	br	br	
House 27	2.441	2.305	1.467	1.403	1.344	1.076	0.768	0.768					
Names 27	orowa	back veranda	stairs	room	balcony	store	toilet	bathroom					
House 28	1.983	1.905	1.579	1.348	1.09	0.953	0.953	0.953	0.921	0.891			
Names 28	orowa	stairs	backyard	front veranda	room	sideyard	bathroom	toilet	outside	shop			
House 29	2.068	2.046	1.493	1.285	0.975	0.921	0.921	0.837					
Names 29	orowa	stairs	backyard	front veranda	room	kitchen	sideyard	outside					
House 30	2.454	2.317	1.668	1.227	1.197	1.159	0.948	0.948	0.948	0.787	0.772		
Names 30	orowa	back veranda	backyard	front veranda	room	stairs	bathroom	toilet	kitchen	outside	sideyard		
House 31	1.668	1.66	1.584	1.223	1.202	1.094	0.83	0.83	0.83	0.82	0.742		
Names 31	orowa	back veranda	stairs	backyard	front veranda	room	bathroom	kitchen	toilet	outside	sideyard		
House 32	1.348	1.333	1.079	0.961	0.852	0.847	0.804	0.801	0.731	0.662	0.564		
House 32	orowa	stairs	front veranda	backyard	balcony	room	outside	sideyard	shop	kitchen	bathroom		
House 33	2.099	1.975	1.729	1.336	1.153	1.13	1.13	1.13	1.072	0.816			
Names 33	backyard	orowa	stairs	front veranda	outside	bathroom	toilet	sideyard	room	balcony			
House 34	1.416	1.091	1.049	0.994	0.926	0.926	0.906	0.885	0.798	0.776	0.745	0.629	
Names 34	stairs	orowa	back veranda	toilet	bathroom	kitchen	front veranda	shop	backyard	room	balcony	sideyard	
	0.569												
	outside												
House 35	1.983	1.905	1.579	1.285	1.086	0.953	0.953	0.906	0.837	0.699			
Names 35	orowa	stairs	backyard	front veranda	room	kitchen	sideyard	balcony	outside	bathroom			
House 36	1.405	1.32	1.223	1.031	0.866	0.825	0.825	0.734	0.717	0.705	0.541		
Names 36	orowa	stairs	backyard	front veranda	room	bathroom	kitchen	outside	sideyard	balcony	toilet		
House 37	4.162	2.312	1.487	1.487	1.272	0.991	0.991	0.991	0.8				
Names 37	orowa	backyard	shop	front veranda	room	toilet	bathroom	sideyard	outside				

House 38	1.972	1.918	1.569	1.263	1.056	0.941	0.941	0.908	0.822				
Names 38	orowa	stairs	backyard	front veranda	room	kitchen	sideyard	balcony	outside				
House 39	1.612	1.56	1.465	1.179	1.007	0.916	0.895	0.806	0.78	0.701	0.701	0.701	
Names 39	orowa	stairs	backyard	front veranda	back veranda	room	sideyard	balcony	outside	kitchen	toilet	bathroom	
House 40	1.657	1.454	1.285	1.201	0.972	0.837	0.837	0.837	0.801	0.747			
Names 40	orowa	stairs	backyard	front veranda	room	kitchen	store	sideyard	outside	balcony			
House 41	2.17	2.112	1.7	1.341	1.219	1.217	1.107	1.025	0.882	0.827			
Names 41	orowa	stairs	front veranda	backyard	room	kitchen	balcony	outside	sideyard	store			
House 42	1.97	1.857	1.629	1.224	1.175	1.1	0.948	0.919	0.86				
Names 42	orowa	stairs	backyard	sideyard	kitchen	room	balcony	outside	bathroom				
House 43	1.841	1.77	1.453	1.308	1.105	0.977	0.977	0.96	0.921	0.906	0.906	0.722	
Names 43	orowa	stairs	front veranda	backyard	room	shop	outside	balcony	sideyard	bathroom	kitchen	store	
House 44	2.524	1.683	1.227	1.156	0.93	0.93	0.884	0.803	0.803	0.803	0.62	0.535	
Names 44	orowa	back veranda	balcony	room	store	kitchen	parlour	toilet	bathroom	stairs	outside	sideyard	
House 45	1.535	1.479	1.151	1.102	1.085	0.943	0.908	0.797	0.773	0.769	0.719	0.563	
Names 45	orowa	stairs	front veranda	parlour	backyard	sideyard	cooking	balcony	outside	room	bathroom	toilet	
House 46	1.965	1.934	1.465	1.273	1.24	1.033	0.912	0.895	0.895	0.82			
Names 46	orowa	stairs	backyard	front veranda	shop	room	balcony	bathroom	sideyard	outside			
House 47	1.91	1.842	1.256	1.046	1.01	1.005	0.969	0.891	0.825				
Names 47	orowa	stairs	front veranda	room	backyard	kitchen	sideyard	balcony	outside				
House 48	1.709	1.418	1.347	1.111	1.095	1.058	1.034	0.9	0.863	0.794	0.766	0.766	
Names 48	backyard	orowa	stairs	front veranda	kitchen	sideyard	back veranda	room	bathroom	outside	toilet	balcony	
House 49	1.553	1.193	1.102	1.099	0.961	0.934	0.896	0.864	0.795	0.795	0.765		
Names 49	backyard	sideyard	orowa	stairs	front veranda	outside	bathroom	kitchen	room	toilet	balcony		
House 50	1.69	1.634	1.231	1.231	1.205	1.049	1.026	1.024	0.885	0.85	0.545	0.545	
Names 50	orowa	stairs	shop	front veranda	kitchen	backyard	room	store	balcony	outside	toilet	bathroom	
House 51	1.294	1.2	1.179	1.119	1.1	1.1	1.065	1.048	1.048	1.016	0.985	0.971	
Names 51	Other doors	ent hall	ext stair	bdr corr	up terr	int stair	dining	living	int stair	LR terr	Front door	kit terr	
	0.957	0.943	0.93	0.88	0.815	0.795	0.795	0.795	0.777	0.777	0.777	0.777	
	car-porch/ver	garage	kitchen	back cor	toilet	bdrm	study	ante-gar	bthrm	toilet	toilet	bdrm	
	0.759	0.654	0.617	0.584									
	utility	store	bdrm	kit store									
House 52	1.294	1.2	1.179	1.119	1.1	1.1	1.065	1.048	1.048	1.016	0.985	0.971	
Names 52	Other doors	ent hall	ext stair	bdr corr	up terr	int stair	dining	living	int stair	LR terr	Front door	kit terr	
	0.957	0.943	0.93	0.88	0.815	0.795	0.795	0.795	0.777	0.777	0.777	0.777	
	car-porch/ver	garage	kitchen	back cor	toilet	bdrm	study	ante-gar	bthrm	toilet	toilet	bdrm	
	0.759	0.654	0.617	0.584									
	utility	store	bdrm	kit store									
House 53	1.814	1.49	1.49	1.303	1.264	1.192	1.159	1.098	1.017	1.017	1.017	1.017	
Names 53	Liv/din	Other doors	in-lobby	kitchen	car porch	serv-lobb	in-lobby	front veranda	Front door	bedrm	bedrm	bedrm	
	0.887	0.887	0.772	0.772	0.772	0.758	0.758	0.758					
	kit-store	ironing	bthrm	store	toilet	guest rm	store	toi & bth					

House 54	1.925	1.674	1.54	1.48	1.426	1.242	1.203	1.132	1.04	1.013	1.013	1.013
Names 54	Courtyard	Living/Dining	Other doors	Kitchen	Utility room	Car porch	bthr-corridor	corridor	verandah	bdrm	bdrm	bdrm
	1.013	0.855	0.77	0.77	0.77	0.74	0.74	0.74				
	Front door	Kitch-store	toilet	bathroom	store	guest-toilet	study	guest-room				
House 55	1.793	1.467	1.241	1.195	1.041	1.008	0.922	0.896	0.849	0.849	0.849	0.827
Names 55	Foyer	Corridor	Courtyd	ante-foy	liv/din	corridor	Other doors	kitchen	study	bedrm	ante-hall	pantry
	0.75	0.717	0.701	0.672	0.672	0.672						
	toilet	Front door	car porch	bedrm	linen	bthrm						
House 56	1.793	1.467	1.241	1.195	1.041	1.008	0.922	0.896	0.849	0.849	0.849	0.827
Names 56	Foyer	Corridor	Courtyd	ante-foy	liv/din	corridor	Other doors	kitchen	study	bedrm	ante-hall	pantry
	0.75	0.717	0.701	0.672	0.672	0.672						
	toilet	Front door	car porch	bedrm	linen	bthrm						
House 57	1.132	1.069	0.962	0.895	0.837	0.837	0.837	0.755	0.713	0.713	0.652	0.652
Names 57	living rm	stairs	stairs	corridor	front-ver	dining	ante lr	corridor	Front door	garage	kitchen	Other doors
	0.621	0.601	0.601	0.601	0.601	0.558	0.5	0.481				
	to bthrm	bedrm	bedrm	study	bedrm	toilet	kit store	bathrm				
House 58	1.132	1.069	0.962	0.895	0.837	0.837	0.837	0.755	0.713	0.713	0.652	0.652
Names 58	living rm	stairs	stairs	corridor	front-ver	dining	ante lr	corridor	Front door	garage	kitchen	Other doors
	0.621	0.601	0.601	0.601	0.601	0.558	0.5	0.481				
	to bthrm	bedrm	bedrm	study	bedrm	toilet	kit store	bathrm				
House 59	1.318	1.054	1.014	0.976	0.879	0.799	0.775	0.753	0.694	0.694	0.659	0.659
Names 59	living rm	dining	br-corrdr	ent lobby	kitchen	outside	in-terr	kit-corr	to bdrm	backyard	toi & bth	bdrm
	0.628	0.613	0.538	0.507								
	out-terr	out stair	kit store	bedrm								
House 60	1.318	1.054	1.014	0.976	0.879	0.799	0.775	0.753	0.694	0.694	0.659	0.659
Names 60	living rm	dining	br-corrdr	ent lobby	kitchen	outside	in-terr	kit-corr	to bdrm	backyard	toi & bth	bdrm
	0.628	0.613	0.538	0.507								
	out-terr	out stair	kit store	bedrm								
House 61	1.601	1.387	1.095	0.991	0.832	0.832	0.832	0.832	0.771	0.771	0.631	0.562
Names 61	Living rm	Corridor	Dining	Car porch	passage	bdr rec	kitchen	study	Front door	bdrm	Kitch door	kit store
	0.562	0.562										
	bthrm	Main bdrm										
House 62	1.601	1.387	1.095	0.991	0.832	0.832	0.832	0.832	0.771	0.771	0.631	0.562
Names 62	Living rm	Corridor	Dining	Car porch	passage	bdr rec	kitchen	study	Front door	bdrm	Kitch door	kit store
	0.562	0.562										
	bthrm	Main bdrm										
House 63	1.681	1.569	1.121	1.023	0.981	0.872	0.841	0.841	0.841	0.841	0.785	0.636
Names 63	Living rm	Corridor	Dining	Car porch	bdr rec	study	courtyard	to bthm	kitchen	bdrm	front door	kitch door
	0.636	0.636	0.574									
	bedroom	bthrm	kit store									
House 64	1.727	1.727	1.612	1.511	1.307	1.307	1.273	1.24	1.125	1.099	1.099	1.075
Names 64	Other doors	bdr corridor	corridor	hallway	kitch-terrace	living room	entrance	Front door	kitchen	garage	study	terrace
	1.029	1.007	1.007	0.987	0.987	0.863	0.834	0.756	0.744	0.711	0.628	

	transition	bedroom	bedroom	shower	bedroom	wash room	dining	kit-store	study-store	bathroom	toilet	
House 65	1.986	1.668	1.545	1.438	1.346	1.127	1.098	1.07	1.043	1.043	1.043	1.043
Names 65	Brm Corr	Ent hall	Brm terr	Other doors	Living rm	ent- porch	Study	LR terr	Master br	Shower	bthrm	Brm 1
	1.043	0.993	0.993	0.948	0.948	0.927	0.802	0.732	0.684			
	Child brm	Kit terr	Front door	Dining	Toilet	Car porch	Kitchen	Study sto	Kit sto			
House 66	1.986	1.668	1.545	1.438	1.346	1.127	1.098	1.07	1.043	1.043	1.043	1.043
Names 66	Brm Corr	Ent hall	Brm terr	Other doors	Living rm	ent- porch	Study	LR terr	Master br	Shower	bthrm	Brm 1
	1.043	0.993	0.993	0.948	0.948	0.927	0.802	0.732	0.684			
	Child brm	Kit terr	Front door	Dining	Toilet	Car porch	Kitchen	Study sto	Kit sto			
House 67	1.626	1.541	1.273	1.045	0.915	0.915	0.915	0.887	0.861	0.861	0.861	0.836
Names 67	Liv/Din	Corridor	Concrse	Car porch	bdrm	kitchen	recess	garage	bdrm	bdrm	study	Front door
	0.732	0.714	0.623	0.623	0.623							
	Other doors	kit porch	kit store	bthrm	bthrm							
House 68	1.536	1.291	1.241	1.076	1.041	0.896	0.872	0.827	0.827	0.787	0.787	0.787
Names 68	Living room	Corridor	Dining room	Ent. porch	Passage	Front door	Study	Bedroom	Passage	Other doors	Garage	Bedroom
	0.787	0.75	0.687	0.621	0.587	0.587						
	Bedroom	Kitchen	Kitch store	verandah	Bathroom	Bathroom						
House 69	1.536	1.291	1.241	1.076	1.041	0.896	0.872	0.827	0.827	0.787	0.787	0.787
Names 69	Living room	Corridor	Dining room	Ent. porch	Passage	Front door	Study	Bedroom	Passage	Other doors	Garage	Bedroom
	0.787	0.75	0.687	0.621	0.587	0.587						
	Bedroom	Kitchen	Kitch store	verandah	Bathroom	Bathroom						
House 70	1.536	1.291	1.241	1.076	1.041	0.896	0.872	0.827	0.827	0.787	0.787	0.787
Names 70	Living room	Corridor	Dining room	Ent. porch	Passage	Front door	Study	Bedroom	Passage	Other doors	Garage	Bedroom
	0.787	0.75	0.687	0.621	0.587	0.587						
	Bedroom	Kitchen	Kitch store	verandah	Bathroom	Bathroom						
House 71	1.613	1.536	1.467	1.403	1.344	1.113	1.076	1.008	1.008	0.949	0.922	0.896
Names 71	Corridor	Entrance hall	Other doors	Bedrm terrace	Living room	LR terrace	Recess to ent.	Kitch. terrace	Front door	Dining room	Car porch	Bathroom
	0.896	0.896	0.896	0.872	0.827	0.672						
	Shower room	Child. Bedrm	Master Bedrm	Study	Kitchen	Kitchen store						
House 72	1.613	1.536	1.467	1.403	1.344	1.113	1.076	1.008	1.008	0.949	0.922	0.896
Names 72	Corridor	Entrance hall	Other doors	Bedrm terrace	Living room	LR terrace	Recess to ent.	Kitch. terrace	Front door	Dining room	Car porch	Bathroom
	0.896	0.896	0.896	0.872	0.827	0.672						
	Shower room	Child. Bedrm	Master Bedrm	Study	Kitchen	Kitchen store						
House 73	1.785	1.618	1.362	1.263	1.151	1.102	1.057	0.996	0.996	0.959	0.959	0.959
Names 73	Living room	Corridor	Dining	Study	Transition-LR	Kitchen	Wash room	Transition-bth	Shower room	Bedroom	Courtyard	Mast.bedroom
	0.959	0.959	0.925	0.849	0.809	0.797	0.729	0.7	0.7	0.655	0.639	0.602
	Linen Store	Bedroom	Ent.porch	Other doors	Transition-Kit	Front door	Guest toilet	toilet	Bathroom	Garage ramp	Garage	Kitchen store
House 74	1.785	1.618	1.362	1.263	1.151	1.102	1.057	0.996	0.996	0.959	0.959	0.959
Names 74	Living room	Corridor	Dining	Study	Transition-LR	Kitchen	Wash room	Transition-bth	Shower room	Bedroom	Courtyard	Mast.bedroom
	0.959	0.959	0.925	0.849	0.809	0.797	0.729	0.7	0.7	0.655	0.639	0.602
	Linen Store	Bedroom	Ent.porch	Other doors	Transition-Kit	Front door	Guest toilet	toilet	Bathroom	Garage ramp	Garage	Kitchen store
House 75	2.079	1.537	1.473	1.359	1.14	1.14	1.039	1.039	1.039	1.039	1.039	1.01
Names 75	Corridor	Living room	bdr corr door	Bth-passage	Ent. porch	Dining room	Study	Bedroom	Bedroom	car porch door	Bedroom	Car porch/utili


0.906
Bth-passage
0.841
Kitchen
0.822
Bthrm store
0.736
Guest toilet
0.631
Bathroom
0.631
Toilet
0.599
Kitch. store

APPENDIX FIVE

BREAKDOWN OF HOUSE / ACTIVITY/ STORAGE MATRICES

SPACE / ACTIVITY MATRIX IN THE OROWA HOUSE

Orowa Houses	ACTIVITY			UTENSILS		FOOD		Total
	Eating	Cooking etc.	Dish-washing	Imple-ments	Facilities	Raw	Trans-formed	
Orowa	1, 6, 7, 8, 12, 13, 23, 24 (8)	1, 3, 5, 6, 8, 9, 12, 13, 15, 20, 22, 23, 24, 25,37 (15)	25 (1)	1, 2, 3, 5, 6, 7, 8, 9, 12, 13, 15, 17, 18, 19, 20, 22, 23, 24, 25, 37 (20)	1, 5, 6, 8, 13, 18, 22, 23, 37 (9)	1, 6, 7, 8, 9, 12, 13, 15, 20 (9)	5, 12, 13, 20 (4)	**66**
Iyara	2, 3, 5, 6, 9, 15, 17, 18, 19, 20, 22, 23, 24, 25, 37 (15)			1, 2, 3, 5, 6, 7, 8, 9, 12, 13, 15, 17, 18, 19, 20, 22, 23, 24, 25, 37 (20)	2, 8, 12, 13, 15, 19, 20, 22, 24, 25 (10)	1, 2, 5, 6, 7, 8, 12, 13, 15, 18, 19, 20, 22, 23, 24, 25, 37, (17)	1, 2, 5, 6, 7, 8, 9, 12, 15, 17, 18, 19, 20, 22, 23, 25, 37, (17)	**79**
Kitchen		2, 3, 7, 9, 12, 15 17, 19, 20, 24, 25 (11)	24, 25 (2)	2, 7, 9, 12, 15 17, 19, 20, 24, 25 (10)	2, 3, 7, 9, 12, 15 17, 19, 20, 24, 25 (11)	9, 17, 19, 24, 25 (5)	9, 24 (2)	**41**
Front-yard	1, 6, 7 (3)	1, 2, 6, 7, 9, 13, 15, 18, 19, 20, 23, 25, 37 (13)	2, 6, 18, 20, 22, 23 (6)		13, 17, 19 (3)	23 (1)		**26**
Front Veranda	2 (1)	2, 15, 22, 23, 25, 37 (6)	13, 15, 17, 37 (4)	2 (1)				**12**
Back-yard		1, 2, 3, 5, 7, 8, 12, 15, 18, 20, 22, 24, 25 (13)	1, 2, 3, 5, 7, 8, 9, 12, 19, 23 (10)	37 (1)	1, 2, 3, 6, 15, 24, 25 (7)	6 (1)		**32**
TOTAL	**27**	**58**	**23**	**52**	**40**	**33**	**23**	**256**

DISTRIBUTEDNESS OF CULINARY-MAPPED SPACES

	Orowa	Backyard	Iyara	Outside	Kitchen	Front veranda
Type A			1, 2, 3, 5, 6, 7, 8, 9, 12, 13, 15, 17, 18, 19, 20, 22, 23, 24, 25, 37 (17)		3, 7, 9, 12, 15, 17, 19, 20, 24, 25 (10)	
Type B	2, 5, 6, 7, 8, 9, 15, 17, 18, 19, 20,22, 23, 24, 25 (15)	1, 2, 3, 5, 6, 7, 8, 9, 15, 17, 18, 19, 20, 22, 23, 24, 25 (17)		2, 3, 6, 7, 8, 9, 15, 17, 18, 19, 20, 22, 23, 24 (14)		2, 3, 9, 15, 17, 18, 22, 23 (8)
Type C	1, 3, 12, 13 (4)	12, 13 (2)	37 (1)	1, 12, 13, 25 (4)		13, 25, 37 (3)
Type D	37 (1)`	37 (1)		5, 37 (2)		
TOTAL	**20**	**20**	**21**	**20**	**10**	**11**

STORAGE PATTERNS FOR UTENSILS IN THE OROWA HOUSE

	IMPLEMENTS				FACILIITIES			
	Cooking Utensils	**Mortar/ grinding stone**	**Electrical appl-iance**	**Ceremo-nial cooking utensils**	**Stoves/ hearth**	**Fridge/ Freezer**	**Wells / Taps**	
Orowa	1, 2, 3, 5, 6, 7, 8, 9, 12, 13, 15, 17, 18, 19, 20, 22, 23, 24, 25, 37 (20)	1, 2, 3, 5, 6, 7, 8, 9, 12, 13, 15, 17, 18, 19, 20, 22, 23, 24, 25, 37 (20)	13 (1)	1, 2 (2)	1, 5, 6, 8, 13, 18, 22, 23, 37 (9)	13 (1)		**53**
Bedroom / Parlour	1, 2, 3, 5, 6, 7, 8, 9, 12, 13, 15, 17, 18, 19, 20, 22, 23, 24, 25, 37 (20)		1, 3, 5, 8, 19, 20, 23, 24, 25 (9)	12, 37 (2)		2, 8, 12, 15, 19, 20, 22, 24, 25 (9)		**40**
Store / Pantry / Loft	22, 5, 8 (3)	22 (1)	22 (1)	3, 5, 6, 7, 8, 9, 15, 19, 22, 23 (10)				**15**
Indoor kitchen / Dining		17, 12 (2)			2, 12, 17, 24 (4)			**6**
Kitchen yard / Courtyard		7, 24 (2)		1, 24, 25 (3)	1, 2, 15, 19 (4)		1, 2, 3, 6, 15, 24 (6)	**15**
Outhouse kitchen		20, 23, 25 (3)		20 (1)	3, 7, 9, 15, 19, 20, 25 (7)			**11**
Frontyard					1, 2 (2)		13, 17, 19 (3)	**5**
Total	**43**	**28**	**11**	**18**	**26**	**10**	**9**	**145**

STORAGE PATTERNS FOR FOOD IN THE OROWA HOUSE

			STORAGE VESSELS			STORAGE SPACES	
	Eaten immed.	Sun-dried/ fried	Cpd in rooms	Cpd in kitchen/ orowa	Fridge /freezer	Storeroom Pantry, Loft	Bedroom or Parlour
				RAW			
Perishables (20)	17, 3, 5, 9, 37, 23, 1 (7)	18, 6, 7 (3)			15, 22, 13, 20, 2, 24, 12, 19, 8, 25 (10)		
Ingredients (18)				15, 13, 25 (3)		5, 19 (2)	17, 3, 22, 18, 6, 2, 9, 37, 24, 12, 23, 8, 1 (13)
Tubers (20)			17, 3, 22, 18, 13, 5, 6, 20, 9, 2, 7, 37, 24, 12, 23, 8, 1 (17)	15, 25 (2)		19 (1)	
Grains (18)			3, 22, 18, 6, 2, 7, 37, 24, 23, 8, 1 (11)	15, 13, 20, 25 (4)		5, 9, 12, 19 (4)	
Fruits (14)	3, 37, 23 (3)		22, 1 (2)	13 (1)	15, 22, 19, 8, 25 (5)	5 (1)	
Vegetables (11)	3 (1)	6, 23 (in yard) (2)		22, 1 (2)	13 (1)	15, 19, 8, 25 (4)	5 (1)
				TRANSFORMED			
Cooked foods (18)			3, 8, 6, 20, 13, 9, 7, 37, 24, 12, 23 (11)	13 (1)	15, 22, 19, 8, 25 (5)	5 (1)	
Canned foods (13)			17, 3, 20, 9, 37, 23, 1 (7)		15, 22, 12, 19 (4)	5, 6 (2)	
TOTAL	**11**	**3**	**50**	**12**	**28**	**14**	**13**

SPACE/ ACTIVITY MATRIX IN THE ROOMING HOUSE

Rooming Houses	ACTIVITY			UTENSILS		FOOD		Total
	Eating	Cooking/ foodprep.	Dish-washing	Implements	Facilities	Raw	Trans-formed	
Hall	16, 21, 26, 27, 32 **(5)**	11, 14, 16, 21, 26, 28, 29, 33, 35, 36, 40, 43, 49 **(13)**	33, 35, 46 **(3)**	11, 14, 16, 21, 26, 28, 29, 33, 40, 45 **(10)**		4, 11, 14, 21, 33, 45 **(6)**		**37**
Room	4, 10, 11, 14, 16, 26, 28, 29, 30, 31, 33, 34, 35, 36, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50 **(27)**	31, 35 **(2)**		10, 16, 26, 27, 28, 29, 30, 31, 33, 35, 36, 41, 42, 44, 47, 48, 49, 50 **(20)**	26, 27, 28, 32, 35, 38, 39, 40, 41, 43, 44, 47, 49, 50 **(16)**	4, 10, 11, 16, 26, 27, 28, 29, 30, 32, 33, 34, 35, 38, 39, 40. 41, 42, 43, 44, 45, 46, 47, 48, 49, 50 **(26)**	4, 10, 11, 14, 16, 26, 27, 28, 29, 30, 31, 32 , 33, 34, 35, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49 **(26)**	**117**
Kitchen		4, 11, 14, 27, 30, 2, 34, 36, 38, 39, 40, 41, 42, 43, 44, 47, 48, 49 **(19)**	4, 11, 26, 47, 50 **(5)**	4, 11, 14, 26, 27, 32, 34, 35, 36, 38, 39, 40, 41, 42, 43, 44, 47, 49, 50 **(19)**	48 **(1)**	4, 14, 26, 27, 29, 32, 34, 39, 40, 41, 42, 44, 47, 49 **(14)**	40, 44, 47, 49 **(4)**	**62**
Frontyard	10, 39 **(2)**	11, 16, 27, 28, 31, 32, 33, 36, 45, 47, 48 **(11)**	16, 27, 28, 45 **(4)**					**17**
Sideyard/ Backyard		4, 10, 16, 21, 26, 30, 32, 33, 35, 38, 39, 40, 41, 42, 43, 45, 46, 47 **(18)**	10, 14, 21, 29, 30, 31, 32, 34, 36, 38, 39, 40, 41, 42, 43, 48, 49, 50 **(18)**	16, 21, 30, 31, 45 **(5)**		30, 31 **(2)**		**43**
Utility/ Store		44, 48 **(2)**	44 **(1)**	50 **(1)**		21, 41, 43, 44 **(4)**	21 **(1)**	**9**
Total	**34**	**65**	**31**	**55**	**17**	**52**	**31**	**285**

STORAGE PATTERNS FOR UTENSILS IN THE ROOMING HOUSE

	IMPLEMENTS				**FACILITIES**			
	Cooking utensils	Mortar/ grinding stone	Electrical appliance	Ceremonial cooking utensils	Stoves/ hearth	Fridge/ freezer	Wells/ Taps	**Total**
Hall	11, 14, 21, 31, 33, 40 **(6)**	14, 16, 26, 28, 29, 33, 40, 45 **(8)**			4, 11, 14, 16, 21, 26, 28, 29, 31, 33, 35, 40 **(13)**			**27**
Room / Parlour	4, 10, 16, 28, 29, 30, 33, 34, 35, 36, 40, 41, 42, 45, 46 **(15)**	4, 30, 31, 34, 40, 46 **(6)**	26, 27, 28, 29, 31, 36, 47, 49, 50 **(9)**	33, 45 **(2)**		26, 27, 28, 32, 35, 36, 38, 39, 40, 41, 43, 44, 47, 48, 49, 50 **(16)**		**48**
Store / Pantry / Loft		50 **(1)**		28, 35, 36, 38, 41, 44, 47, 50 **(8)**				**9**
Indoor kitchen / Dining	27, 32, 44 **(3)**	27, 32, 41, 44 **(4)**	32 **(1)**	11, 32, 34 **(3)**	11, 14, 27, 34, 41, 44, 46 **(7)**			**18**
Backyard / Courtyard	21 **(1)**	10, 21, 30, 45, 50 **(5)**		4, 21, 26, 30, 48 **(5)**	21, 26, 43, 45 **(4)**		14, 26, 33, 35, 36, 42, 43, 46, 49, 50 **(10)**	**25**
Outhouse kitchen	11, 26, 38, 39, 43, 47, 48, 49, 50 **(9)**	11, 14, 26, 30, 35, 36, 38, 39, 42, 43, 47, 48, 49, 50 **(14)**		29, 39, 40, 42, 43, 49 **(6)**	10, 26, 29, 30, 31, 32, 35, 36, 38, 39, 40, 42, 43, 47, 48, 49, 50 **(17)**			**46**
Frontyard		16 **(1)**			14, 16, 33 **(3)**		14, 27, 29, 30, 31, 43 **(6)**	**10**
	34	39	10	24	44	16	16	**183**

STORAGE PATTERNS FOR FOOD IN THE ROOMING HOUSE

			STORAGE VESSELS			**STORAGE SPACES**	
	Eaten immed.	Sun-dried/ fried	Cpd in rooms	Cpd in kitchen/ orowa	Fridge /freezer	Storeroo mPantry, Loft	Bedroom or Parlour
				RAW			
Perishables (29)	10, 16, 21, 26, 30, 33, 45, 46 **(8)**	4 **(1)**	14 **(1)**		27, 28, 29, 31, 32, 34, 35, 36, 38, 39, 40, 41, 42, 43, 44, 47, 48, 49, 50 **(19)**		
Ingredients (30)				4, 27, 33, 34, 39, 41, 42, 44, 47, 49 **(10)**	32 **(1)**	43 **(1)**	10, 11, 14, 16, 21, 26, 28, 29, 30, 31, 38, 40, 45, 46, 48, 50 **(18)**
Tubers (22)			21, 26, 27, 28, 29, 30, 31, 33, 35, 36, 38, 39, 45, 48 **(14)**	14, 32, 34, 40, 42, 47, 49, 50 **(8)**		4, 11, 41, 43, 44, 46 **(6)**	
Grains (26)			4, 21, 27, 29, 30, 31, 36, 38, 39, 40, 43, 45, 46, 50 **(14)**	11, 14, 32, 33, 34, 41, 42, 44, 47, 49 **(10)**		28, 35 **(2)**	
Fruits (26)	26, 30, 31, 34, 45, 46 **(6)**		4, 21, 29, 36, 40 **(5)**	11, 33 **(2)**	27, 28, 32, 35, 38, 39, 41, 42, 47, 48, 49, 50 **(12)**	21 **(1)**	
Vegetables (26)	4, 26, 33, 46 **(4)**	30 **(1)**	10, 29, 36, 45 **(4)**	11, 31 **(2)**	27, 28, 32, 34, 35, 38, 39, 40, 41, 42, 44, 47, 49, 50 **(14)**	21 **(1)**	
				TRANSFORMED			
Cooked foods (30)			4, 10, 11, 16, 21, 26, 29, 30, 31, 35, 36, 39, 40, 42, 45, 48 **(16)**	14, 27, 33, 34, 41, 44, 49, 50 **(8)**	28, 32, 38, 43, 47 **(5)**	46 **(1)**	
Canned foods (22)			11, 14, 21, 26, 28, 30, 31, 33, 35, 45, 50 **(11)**	27, 34, 40, 44, 47, 49 **(6)**	29, 36, 39 **(3)**	46, 48 **(2)**	
TOTAL (217)	**18**	**2**	**65**	**46**	**54**	**14**	**18**

SPACE / ACTIVITY MATRIX IN THE MODERN HOUSE

Modern Houses	ACTIVITY			UTENSILS			FOOD		Total
	Eating	Cooking/ foodprep.	Dish-washing	Implements: Manual	Implements: Electronic	Facilities	Raw/ Uncooked	Trans-formed	
Living/ Dining	51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75 **(25)**				56, 57, 63, 67, 72 **(5)**	57, 61, 62, 64, 65, 66, 67, 71, 72 **(9)**	57, 61, 63, 64, 65, 66, 67, 71, 72 **(9)**	57, 65, 66, 67, 71, 72 **(6)**	**54**
Bedroom	55, 56, 58, 63, 64, 72 **(6)**						54, 57, 64, 74 **(4)**	54, 55, 62, 64, 68, 70, 72, 75 **(8)**	**18**
Kitchen	73 **(1)**	51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75 **(25)**	51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75 **(24)**	51, 52, 53, 54, 59, 60, 61, 62, 63, 64, 65, 66, 67, 69, 70, 71, 72, 73, 74, 75 **(20)**	51, 52, 53, 54, 55, 56, 58, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75 **(23)**	51, 52, 53, 55, 56, 58, 59, 60, 61, 62, 63, 64, 65, 68, 69, 70, 71, 72, 73, 74, 75 **(21)**	51, 52, 53, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75 **(24)**	51, 52, 53, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 73, 74, 75 **(23)**	**161**
Backyard/ Courtyard		51, 52, 53, 54, 55, 57, 58, 59, 60, 62, 65, 66, 67, 68, 69, 71, 73, 74, 75 **(20)**	64 **(1)**	55, 56, 65 **(3)**					**24**
Store/ Garage/ Utility Room				53, 62, 64, 65, 66, 68, 70, 74, 75 **(9)**	53, 56, 59, 62, 75 **(5)**	51, 54, 56, 68, 73, 74 **(6)**	51, 52, 53, 54, 55, 56, 58, 59, 60, 62, 63, 64, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75 **(22)**	55, 56, 59, 60, 62, 63, 73, 75 **(8)**	**50**
Total	**32**	**45**	**25**	**32**	**33**	**36**	**59**	**45**	**307**

STORAGE SPACES FOR IMPLEMENTS AND FACILITIES IN THE MODERN HOUSE

Implement/ Space	Utensils	Mortar/ grinding stone	Electrical appliance	Fridge/ Freezer	Ceremonial utensils	Water Taps / Tanks	Total
Living/ Dining			56, 57, 63, 67, 72 **(5)**	57, 61, 62, 64, 65, 66, 67, 71, 72 **(9)**			**14**
Kitchen	51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75 **(25)**	51, 52, 53, 54, 59, 60, 61, 62, 63, 64, 65, 67, 70, 71, 72, 73, 74, 75 **(19)**	51, 52, 53, 54, 55, 56, 58, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75 **(23)**	51, 52, 53, 55, 56, 58, 59, 60, 61, 62, 63, 64, 65, 68, 69, 70, 71, 72, 73, 74, 75 **(21)**	61, 63 **(2)**	51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75 **(25)**	**115**
Bedroom	55, 56, 57 **(3)**						**3**
Backyard/ Courtyard		53, 54, 55, 56 **(4)**			55 **(1)**		**5**
Kitchen store	51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75 **(25)**	62, 64, 65, 66, 68, 70, 74 **(7)**	59, 62, 69, 75 **(4)**		51, 52, 58, 59, 60, 62, 65, 68, 75 **(9)**	55, 56 **(2)**	**47**
Kitchen terrace	51, 52, **(2)**	51, 52, 65, 71, 72 **(5)**					**7**
Utility Room		53, 75 **(2)**	53, 56, 59, 62, 75 **(5)**	51, 54, 56, 68, 73, 74 **(6)**	53, 56, 59, 62, 75 **(5)**		**18**
Garage					70 **(1)**		**1**
Boy's Quarters					51, 52, 58, 59, 60, 62, 65, 68, 74 **(9)**		**9**
TOTAL	**55**	**37**	**37**	**36**	**27**	**27**	**219**

STORAGE PATTERNS FOR FOODS IN THE MODERN HOUSE

		STORAGE VESSELS		STORAGE SPACES		
	Eaten immed.	Kitchen cupboard/rack	Fridge/ Freezer	Kitchen	Store, pantry, loft	Parlour / Bedroom
			RAW			
Perishables (25)			51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75 **(25)**			
Ingredients (25)			54 **(1)**	51, 52, 53, 56, 57, 58, 60, 61, 63, 65, 66, 67, 68, 69, 70, 71, 72, 74 **(18)**	55, 59, 62, 64, 73, 75 **(6)**	
Tubers (25)		53, 56, 57, 58, 61, 71, 72, 73, 74 **(9)**			51, 52, 54, 55, 59, 60, 62, 63, 64, 65, 66, 67, 68, 69, 70 **(15)**	
Grains (5)		61, 64, 70, 71, 72 **(5)**	53 **(1)**		51, 52, 55, 56, 58, 59, 60, 62, 63, 65, 66, 67, 68, 69, 70 **(16)**	54, 57, 74 **(3)**
Fruits (24)	53, 62, 75 **(3)**	55, 65, 66, 68, 71, 72, 74 **(7)**	51, 52, 56, 57, 59, 60, 61, 63, 64, 69, 74 **(11)**		54, 62, 70 **(3)**	
Vegetables (24)			51, 52, 53, 54, 56, 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 68, 69, 71, 72, 73, 74, 75 **(21)**	55, 56 **(2)**		
			TRANSFORMED			
Cooked foods (25)		59, 61 **(2)**	51, 52, 53, 54, 55, 56, 58, 60, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75 **(22)**		57 **(1)**	
Canned foods		51, 52, 53, 57, 58, 66, 70, 71, 74 **(9)**	67 **(1)**		56, 59, 60, 63, 65, 69, 73 **(7)**	54, 55, 62, 64, 68, 72, 75 **(7)**
Total	**3**	**32**	**82**	**20**	**49**	**10**

APPENDIX SIX – CULINARY MAPS: STEP DISTANCES

OROWA HOUSE –

- ACTIVITY

House No	Eating	Dishwashing	Foodprocessing	Ceremonial cooking	Average Step distance
17	3	3	0	.	1.5
15	2	1	1	1	1
3	1	1	2	1	1.333
22	1.5	1.5	1	1.5	1.333
18	1.65	1.5	.	2.5	2
13	0	1	.	2	1.5
5	1	1	0	1	0.667
6	0.8	1	1	1	1
20	1	2	0	1.5	1.167
2	1.5	1.5	3	1.5	2
9	2.4	1	0	1	0.667
7	3	2	2	4	2.667
37	1.5	0.5	0.5	1.5	0.833
24	0.5	2	2	2	2
12	1.67	1	1.5	4	2.167
23	1	1.5	0	1.5	1
19	3	1	0	4	1.667
8	1	2	0	2	1.333
1	1.33	1	1.33	1.5	1.277
25	5	1	0	1	0.667
Mean	**1.692**	**1.38**	**0.85**	**1.87**	**1.389**

- UTENSILS

House No	Mortar etc	Utensils	Electrical Appliances	Fridge	Av.Step Distance
17	0	3	.	.	1.5
15	1	1	.	1	1
3	0	1	1	.	0.667
22	2.5	2.5	1.5	1.5	2
18	0.5	1.5	.	.	1
13	1	0	.	1	0.667
5	.	1	1	.	1
6	1	1	.	.	1
20	0	2	1	1	1
2	1.5	3	.	.	2.25
9	0	1	.	.	0.5
7	0.5	3	.	.	1.75
37	1	0.5	.	.	0.75
24	2	2	1	1	1.5
12	0	2	1	2	1.25
23	1	0.5	1	.	0.833
19	0	0	3	3	1.5
8	0	0	1	1	0.5
1	0.5	2	2	.	1.5
25	3	0	5	5	3.25
Mean distance	0.8	1.4	1.7	1.8	1.271

- FOOD

House No	Grains/ Cereals	Perishables	Canned foods	Tubers	Fruit/ Vegetables	Ingredient	Cooked food
17	.	.	3	0	.	0	.
15	2	.	.	2	.	2	2
3	0	.	1	1	1	1	1
22	1.5	1.5	1.5	1.5	1.5	1.5	1.5
18	1.5	.	.	1.5	.	1.5	1.5
13	0	1	.	1	0	0	0
5	1	.	1	1	1	1	0
6	1	.	1	1	2	.	.
20	2	1	1.5	1	1	.	1
2	3	.	.	3	3	3	3
9	1	.	2.4	1	.	1	1
7	3	.	.	3	.	3	3
37	1.5	.	.	1.5	1.5	1.5	1.5
24	2	1	.	2	1	2	2
12	1	2	2	1.5	.	.	1.5
23	1	.	1	1	1	1	1
19	2	3	3	2	2	1.8	3
8	1	1	.	1	1	0.5	1
1	2	0	2	2	2	2	2
25	4	5	.	0	5	4	4
Mean total	**1.6**	**1.4**	**1.8**	**1.4**	**1.6**	**1.6**	**1.7**

ROOMING HOUSE

- ACTIVITY

House No	Eating	Dishwashing	Foodprocessing	Ceremonial cooking	Average Step distance
4	2	0	0	4	1.33
10	2	1	.	1	1.00
11	3	0	.	3	1.50
14	4	1	2	0	1.00
16	2.5	1.5	1.5	1.5	1.50
21	2	0	1.5	0	0.50
26	2.5	0	2	1	1.00
27	2.5	4	.	4	4.00
28	1	2	2	2	2.00
29	1	1	0	.	0.50
30	4	1	1	2.5	1.50
31	1	4	4	4	4.00
32	5	5	2.5	7	4.83
33	1	0	2	2	1.33
34	4	3	0	1.5	1.50
35	1	0	1	3	1.33
36	4	1	2	4	2.33
38	3	1	1	1	1.00
39	4.5	2	2	2	2.00
40	2	1	1	1	1.00
41	2	3	2	0	1.67
42	3	1	0	1	0.67
43	4	2	3	1	2.00
44	3	0	0	2	0.67
45	4	3.5	2	4	3.17
46	4	1	0	2	1.00
47	3	0	4	1	1.67
48	4	1	3.5	0	1.50
49	4	2	3	0	1.67
50	4	1.5	0.5	2	1.33
Mean	**2.90**	**1.45**	**1.61**	**1.98**	**1.68**

ROOMING HOUSE – STEP DISTANCES

- UTENSILS

House	Mortar	Cook utensil	Elect appliance	Fridge Freezer	Av. Step Distance
4	0	0	.	.	0
10	0	2	.	.	1
11	1	1	.	.	1
14	1	2	.	.	1.5
16	1.5	4	.	.	2.75
21	0	1	.	.	0.5
26	1	0	3	3	1.75
27	0	0	3	3	1.5
28	0	1	1	1	0.75
29	0	1	1	0	0.5
30	2.5	4	.	.	3.25
31	1	0	2	.	1
32	0	0	0	5	1.25
33	0	0.5	.	.	0.25
34	0	0	.	.	0
35	4	1	.	1	2
36	0	4	3	4	2.75
38	0	0	.	3	1
39	0	0	.	5	1.67
40	1	1	.	2	1.33
41	0	2	.	2	1.33
42	0	5	.	.	2.5
43	0	0	.	4	1.33
44	0	0	.	4	1.33
45	1	4	.	.	2.5
46	0	0	.	.	0
47	0	0	3	3	1.5
48	0	0	.	4	1.33
49	0	0	4	4	2
50	2	1	4	4	2.75
Total	**1.0**	**1.1**	**2.4**	**3.06**	**1.411**

MODERN HOUSE

- ACTIVITY

House No	Eating	Dishwashing	Foodprocessing	Ceremonial cooking	Average step distance
51	1.00	0.00	0.00	3.00	1.000
52	1.00	0.00	0.00	3.00	1.000
53	1.00	0.00	2.00	2.00	1.333
54	2.00	0.00	.	1.00	.500
55	2.00	0.00	1.00	2.00	1.000
56	2.00	0.00	1.00	2.00	1.000
57	2.50	0.00	1.00	1.00	.667
58	2.00	0.00	.	1.00	.500
59	1.00	0.00	0.00	4.00	1.333
60	1.00	0.00	0.00	4.00	1.333
61	1.00	0.00	.	0.00	0.000
62	1.50	0.00	0.00	1.00	.333
63	1.50	0.00	0.00	0.00	0.000
64	1.50	1.00	0.00	2.00	1.000
65	1.50	0.00	2.00	2.00	1.333
66	1.00	0.00	.	2.00	1.000
67	1.00	0.00	.	2.00	1.000
68	2.50	0.00	1.00	2.00	1.000
69	2.50	0.00	2.00	2.00	1.333
70	2.50	0.00	2.00	2.00	1.333
71	1.00	0.00	2.00	2.00	1.333
72	1.00	1.00	0.00	2.00	1.000
73	.50	0.00	.	1.00	.500
74	1.50	0.00	0.00	1.00	.333
75	1.00	0.00	2.00	2.00	1.333
Mean total	1.48	0.08	0.84	1.84	0.900

- UTENSILS

House	Mortar etc	Cooking utensils	Electrical appliance	Fridge/ Freezer	Average step distance
51	0.0	0.0	0.0	.5	.125
52	0.0	0.0	0.0	0.0	0
53	3.0	.5	1.5	0.0	1.250
54	0.0	0.0	0.0	1.0	.250
55	1.0	.5	0.0	.5	.500
56	1.0	0.0	1.0	.5	.625
57	.5	0.0	2.0	1.0	.875
58	0.0	0.0	0.0	0.0	0
59	0.0	0.0	2.0	0.0	.500
60	0.0	0.0	0.0	0.0	0
61	0.0	0.0	0.0	.5	.125
62	1.0	0.0	1.0	.5	.625
63	0.0	0.0	.5	0.0	.125
64	.5	0.0	0.0	1.0	.375
65	1.0	0.0	0.0	1.0	.500
66	2.0	0.0	0.0	1.0	.750
67	0.0	0.0	1.0	2.0	.750
68	0.0	0.0	2.0	1.0	.750
69	0.0	1.0	2.0	0.0	.750
70	2.0	0.0	4.0	0.0	1.500
71	.	0.0	0.0	.5	.167
72	.5	0.0	0.0	.5	.250
73	0.0	0.0	0.0	1.0	.250
74	1.0	0.0	0.0	1.0	.500
75	.5	0.0	1.0	.5	.500
Mean total	0.6	0.1	0.7	0.6	0.482

APPENDIX SIX
INTEGRATED TO SEGREGATED SPACES RATIO

OROWA HOUSE

House No	No of integrated convex spaces: I	No of segregated convex spaces: S	I: S ratio
17	1	8	0.13
15	1	8	0.13
3	1	10	0.10
22	1	10	0.10
18	2	9	0.22
13	2	10	0.20
5	2	10	0.20
6	2	10	0.20
20	1	12	0.08
2	2	11	0.18
9	2	11	0.18
7	1	12	0.08
37	1	13	0.08
24	1	13	0.08
12	2	13	0.15
23	1	15	0.07
19	2	14	0.14
8	2	15	0.13
1	2	16	0.13
25	3	19	0.16
		Mean I: S ratio	**0.137**

ROOMING HOUSE

House No	No of integrated convex spaces: I	No of segregated convex spaces: S	I: S ratio
21	3	19	0.16
27	1	17	0.06
14	3	16	0.19
44	2	17	0.12
30	3	18	0.17
16	4	17	0.24
39	3	20	0.15
46	2	21	0.10
45	3	21	0.14
4	3	21	0.14
10	5	19	0.26
38	2	22	0.09
35	2	23	0.09
40	3	22	0.14
47	3	22	0.14
28	2	23	0.09
29	2	23	0.09
33	3	23	0.13
11	3	24	0.13
36	4	24	0.17
31	3	26	0.12
41	4	25	0.16
50	3	30	0.10
48	4	30	0.13
42	3	32	0.09
49	5	32	0.16
26	7	31	0.23
32	7	33	0.21
34	6	34	0.18
43	3	37	0.08
		Mean I: S ratio	**0.140**

MODERN HOUSE

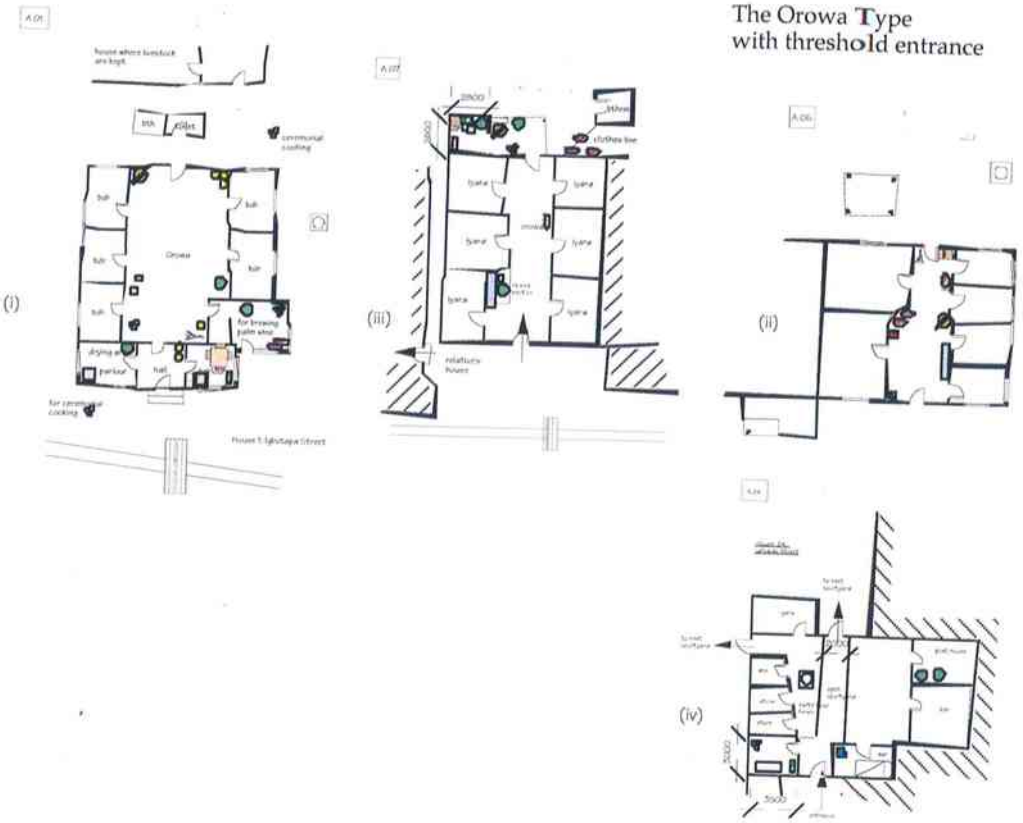
Table 7.17 MODERN HOUSE

House No	LIVING RM	DINING RM	KITCHEN	BEDROOM	BACKYARD	UTILITY ROOM	STORE ROOM
C51		EATING	COOKING		CEREMONIAL COOKING	FRIDGE/FREEZER	FOOD STORAGE
			DISHWASHING				
			FOOD PROCESSING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
C52		EATING	COOKING	EATING	CEREMONIAL COOKING		FOOD STORAGE
			DISHWASHING				
			FOOD PROCESSING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C53		EATING	COOKING		FOOD PROCESSING	IMPLEMENT STORAGE	IMPLEMENT STORAGE
		IMPLEMENT STORAGE	DISHWASHING		CEREMONIAL COOKING		FOOD STORAGE
		FOOD STORAGE	IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C54		EATING	COOKING	FOOD STORAGE	CEREMONIAL COOKING	FRIDGE/FREEZER	FOOD STORAGE
			DISHWASHING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
C55		EATING	COOKING	EATING	FOOD PROCESSING	FOOD STORAGE	
			DISHWASHING	FOOD STORAGE	CEREMONIAL COOKING	FRIDGE/FREEZER	
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C56		EATING	COOKING	EATING	FOOD PROCESSING	FOOD STORAGE	
		IMPLEMENT STORAGE	DISHWASHING		CEREMONIAL COOKING	FRIDGE/FREEZER	
			EATING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C57	EATING	EATING	COOKING	FOOD STORAGE	FOOD PROCESSING		IMPLEMENT STORAGE
		IMPLEMENT STORAGE	DISHWASHING		CEREMONIAL COOKING		
		FOOD STORAGE	IMPLEMENT STORAGE				
		FRIDGE/FREEZER	FOOD STORAGE				
			FRIDGE/FREEZER				
C58		EATING	COOKING	EATING	CEREMONIAL COOKING		FOOD STORAGE
			DISHWASHING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C59		EATING	COOKING		CEREMONIAL COOKING		IMPLEMENT STORAGE
			DISHWASHING				FOOD STORAGE
			FOOD PROCESSING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C60		EATING	COOKING		CEREMONIAL COOKING		IMPLEMENT STORAGE
			DISHWASHING				FOOD STORAGE
			FOOD PROCESSING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C61		EATING	COOKING				IMPLEMENT STORAGE
		FRIDGE/FREEZER	DISHWASHING				FOOD STORAGE
			CEREMONIAL COOKING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C62	EATING	EATING	COOKING	FOOD STORAGE	CEREMONIAL COOKING		IMPLEMENT STORAGE
		FRIDGE/FREEZER	DISHWASHING				FOOD STORAGE
			FOOD PROCESSING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C63	EATING	EATING	COOKING	EATING			FOOD STORAGE
		IMPLEMENT STORAGE	DISHWASHING				
		FOOD STORAGE	FOOD PROCESSING				
			CEREMONIAL COOKING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C64	EATING	EATING	COOKING	EATING	CEREMONIAL COOKING		IMPLEMENT STORAGE
		FRIDGE/FREEZER	FOOD PROCESSING	FOOD STORAGE	DISHWASHING		FOOD STORAGE
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				

Table 7.17 MODERN HOUSE

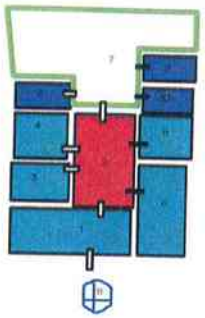
House No	LIVING RM	DINING RM	KITCHEN	BEDROOM	BACKYARD	UTILITY ROOM	STORE ROOM
C65	EATING	EATING	COOKING		FOOD PROCESSING	IMPLEMENT STORAGE	FOOD STORAGE
		FOOD STORAGE	DISHWASHING		CEREMONIAL COOKING		
		FRIDGE/FREEZER	IMPLEMENT STORAGE				
			FOOD STORAGE				
C66	EATING	EATING	COOKING		FOOD PROCESSING		FOOD STORAGE
		FRIDGE/FREEZER	DISHWASHING		CEREMONIAL COOKING		
		IMPLEMENT STORAGE	EATING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
C67	EATING	EATING	COOKING		CEREMONIAL COOKING		FOOD STORAGE
		IMPLEMENT STORAGE	DISHWASHING				
		FOOD STORAGE	EATING				
		FRIDGE/FREEZER	IMPLEMENT STORAGE				
			FOOD STORAGE				
C68	EATING	EATING	COOKING	FOOD STORAGE	CEREMONIAL COOKING		FOOD STORAGE
		IMPLEMENT STORAGE	DISHWASHING		FOOD PROCESSING		
		FOOD STORAGE	IMPLEMENT STORAGE				
		FRIDGE/FREEZER	FOOD STORAGE				
			FRIDGE/FREEZER				
C69	EATING	EATING	COOKING		CEREMONIAL COOKING	FOOD STORAGE	IMPLEMENT STORAGE
			DISHWASHING		FOOD PROCESSING		FOOD STORAGE
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C70	EATING	EATING	COOKING	IMPLEMENT STORAGE	CEREMONIAL COOKING		IMPLEMENT STORAGE
			DISHWASHING		FOOD PROCESSING		FOOD STORAGE
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C71	EATING	EATING	COOKING		CEREMONIAL COOKING		IMPLEMENT STORAGE
		FOOD STORAGE	DISHWASHING		FOOD PROCESSING		
		FRIDGE/FREEZER	EATING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C72	EATING	EATING	COOKING	EATING	DISHWASHING	IMPLEMENT STORAGE	FOOD STORAGE
		FOOD STORAGE	DISHWASHING	FOOD STORAGE	CEREMONIAL COOKING		
		FRIDGE/FREEZER	EATING				
			FOOD PROCESSING				
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				
C73		EATING	COOKING		CEREMONIAL COOKING	IMPLEMENT STORAGE	FOOD STORAGE
			DISHWASHING			FOOD STORAGE	
			EATING			FRIDGE/FREEZER	
			IMPLEMENT STORAGE				
			FOOD STORAGE				
C74	EATING	EATING	COOKING		CEREMONIAL COOKING	IMPLEMENT STORAGE	FOOD STORAGE
			DISHWASHING			FOOD STORAGE	
			FOOD PROCESSING			FRIDGE/FREEZER	
			IMPLEMENT STORAGE				
			FOOD STORAGE				
C75		EATING	COOKING	IMPLEMENT STORAGE	CEREMONIAL COOKING	IMPLEMENT STORAGE	IMPLEMENT STORAGE
		FRIDGE/FREEZER	DISHWASHING	FOOD STORAGE	FOOD PROCESSING		FOOD STORAGE
			IMPLEMENT STORAGE				
			FOOD STORAGE				
			FRIDGE/FREEZER				

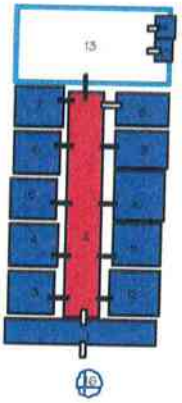
The Orowa Type
with threshold entrance

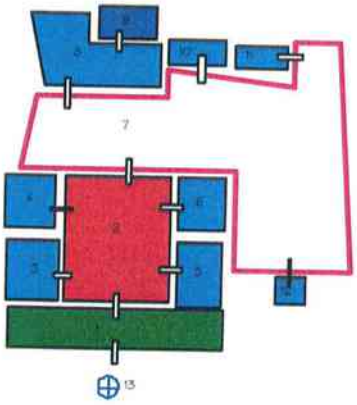


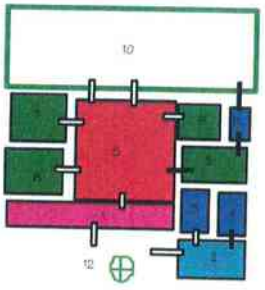
The Orowa Type
With threshold entrance and shop front

The Orowa Type
with front veranda

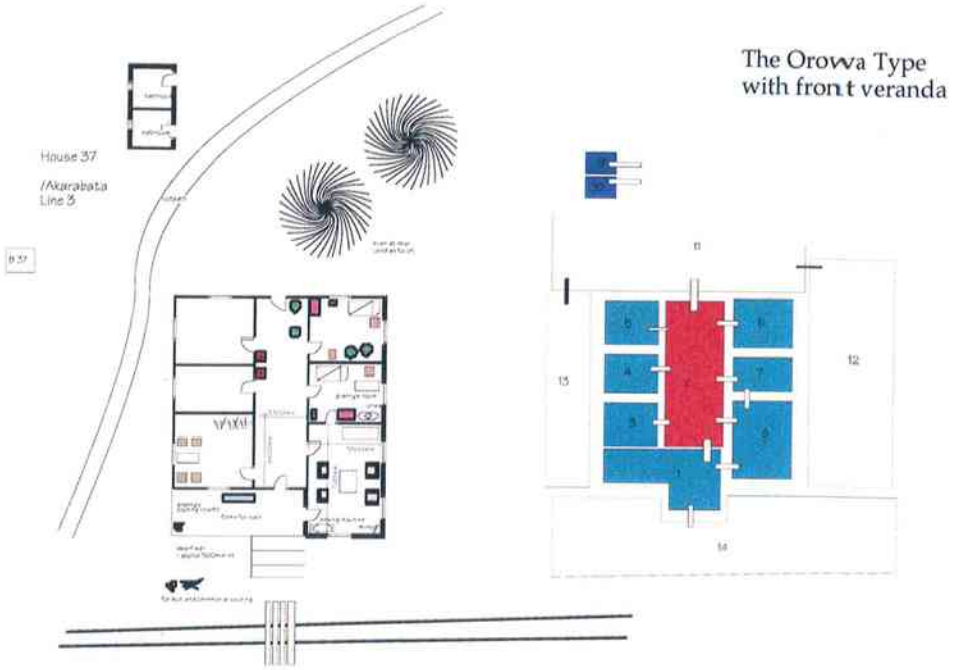


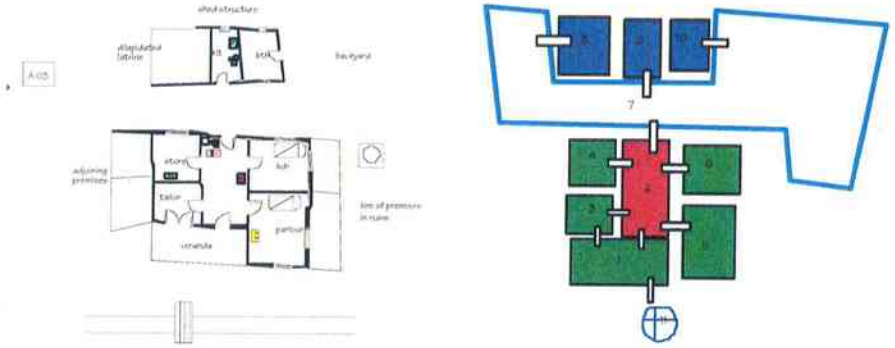


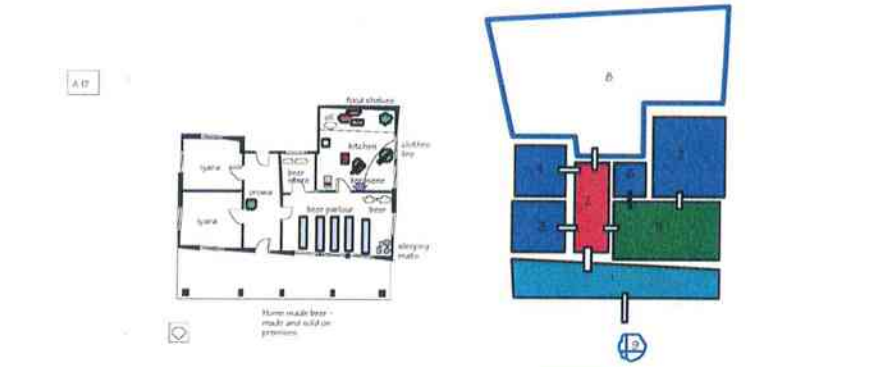


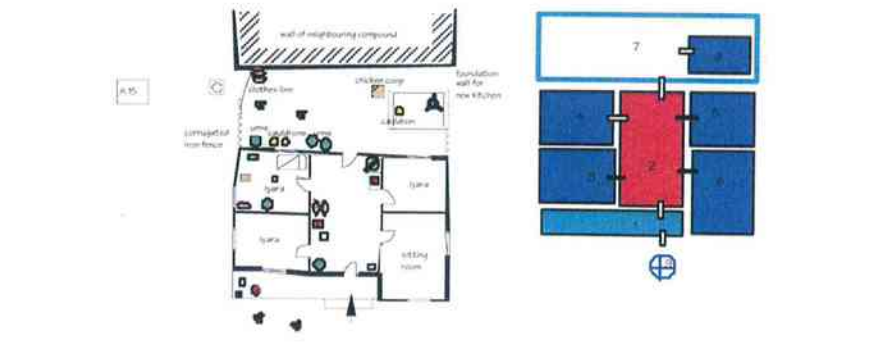


The Orowa Type
with front veranda

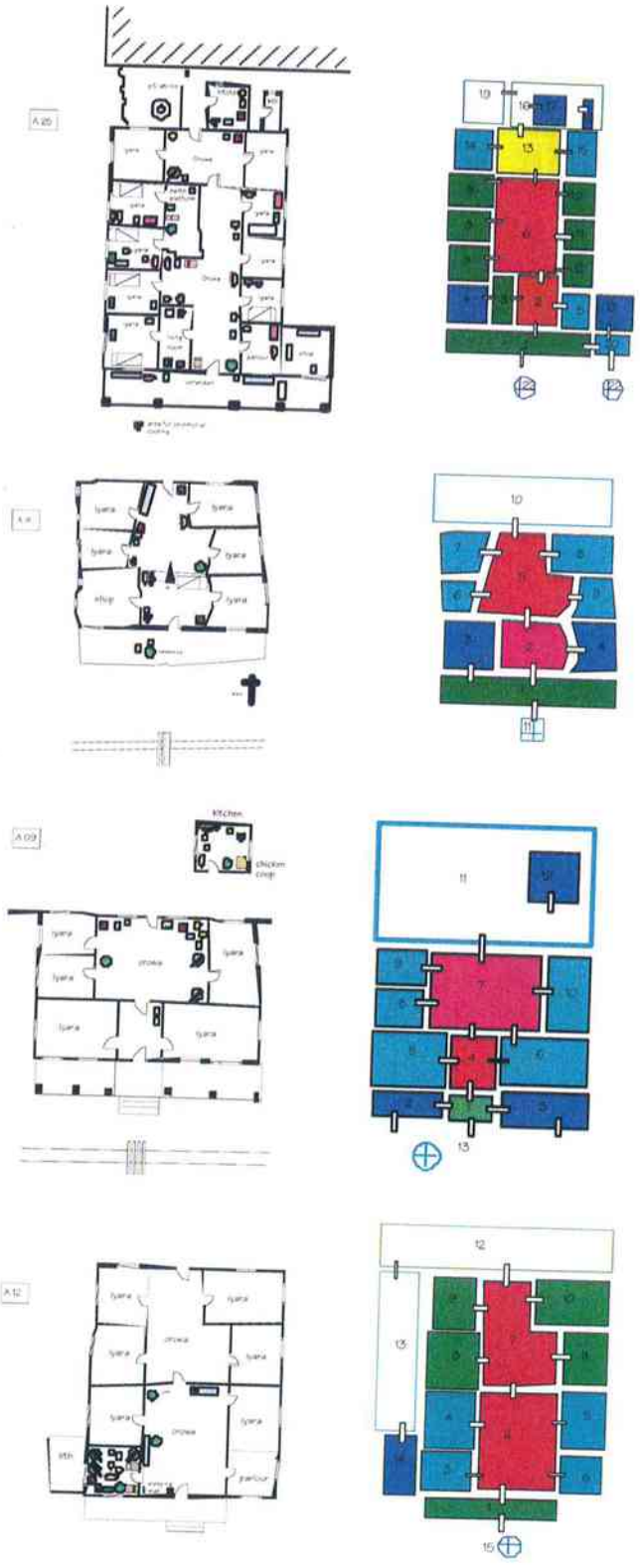




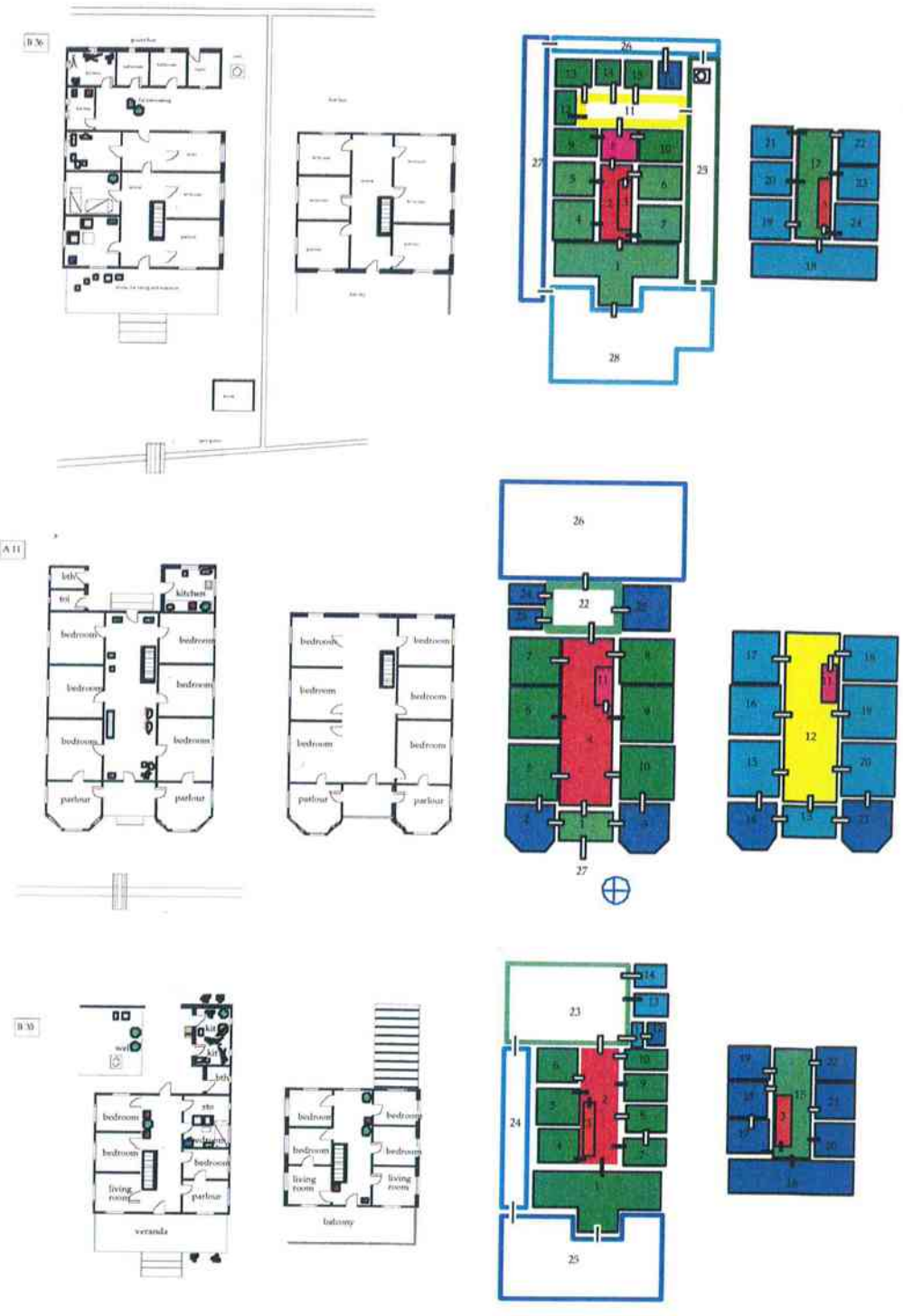




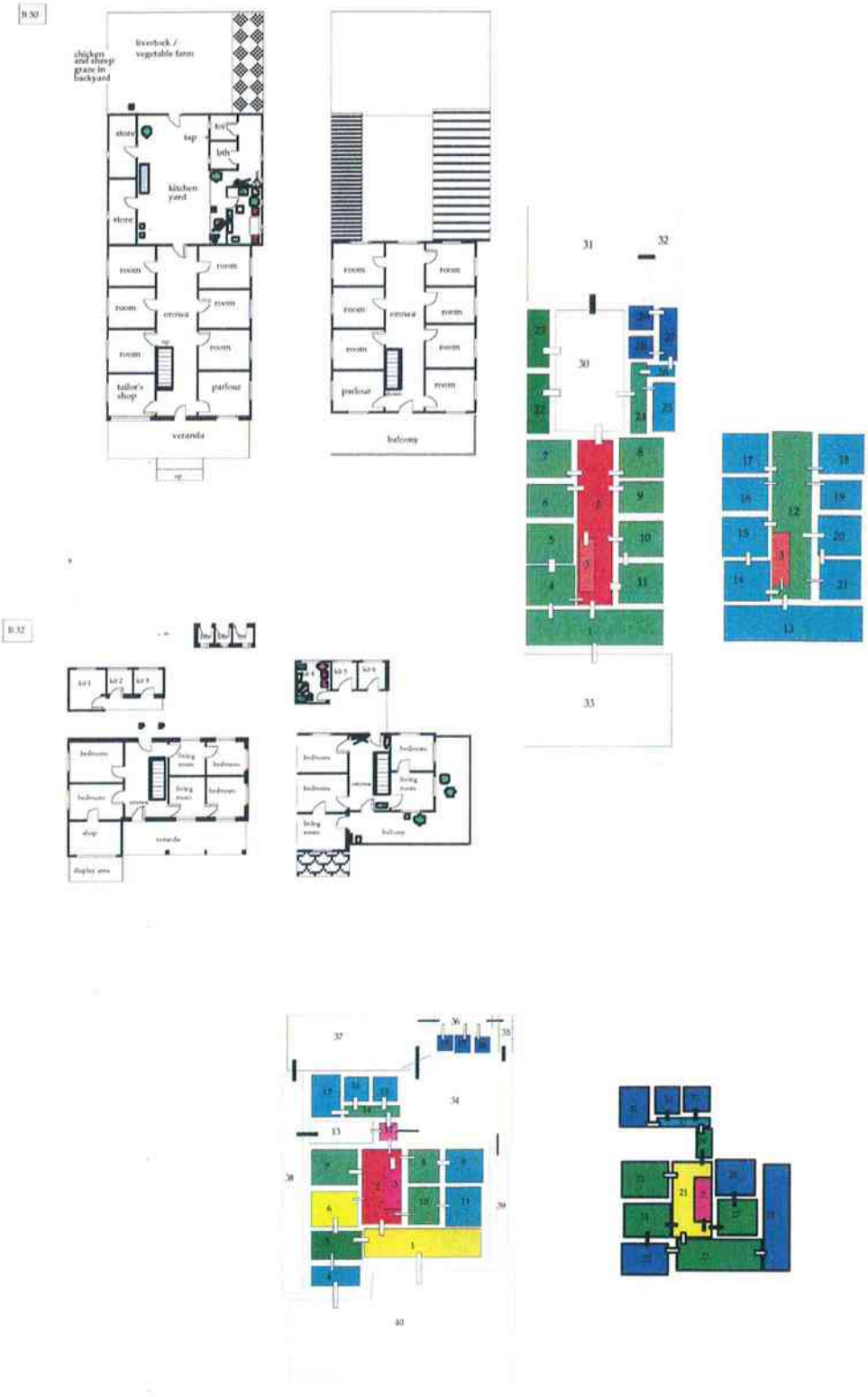
The Orowa Type
With front veranda and split orowa



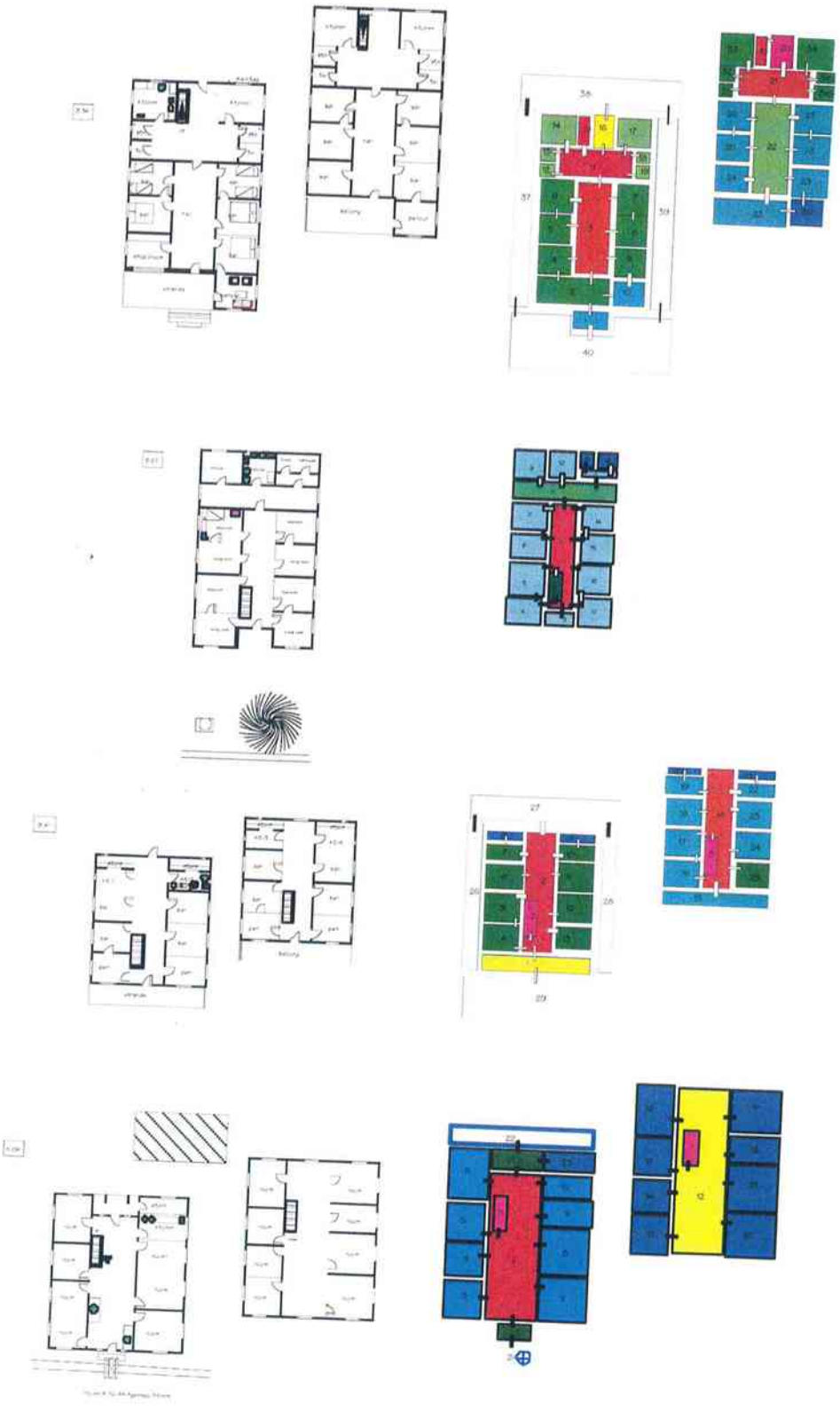
The Rooming Type
House with semi-detached kitchen



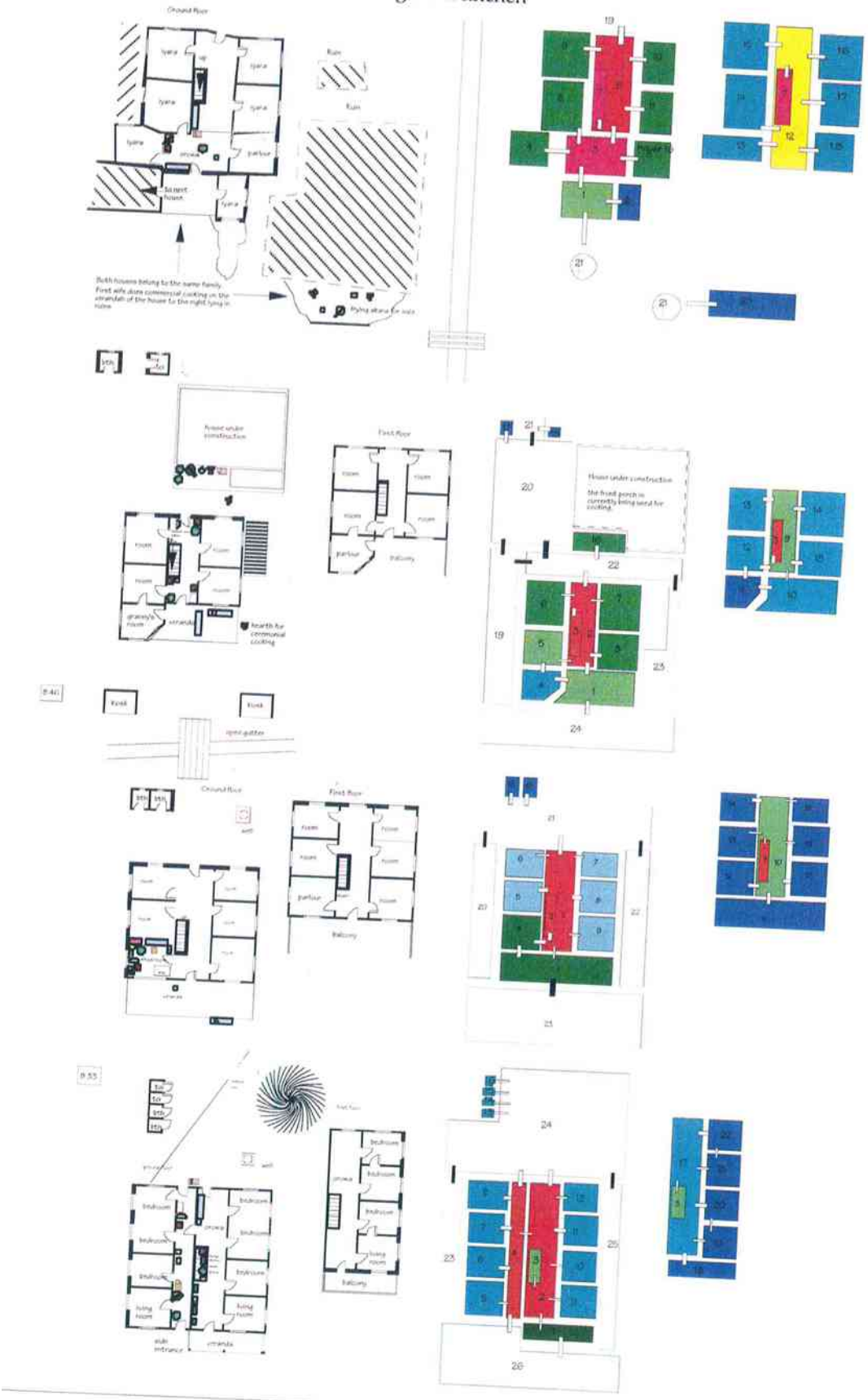
The Rooming Type
House with semi-detached kitchen



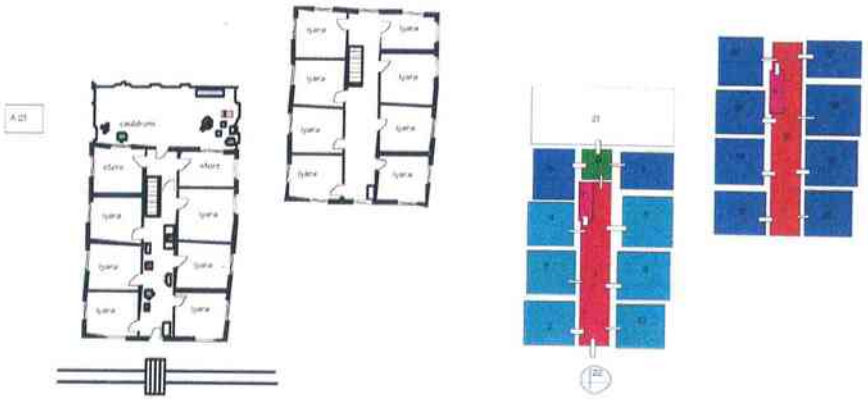
The Rooming Type
House with integral kitchen

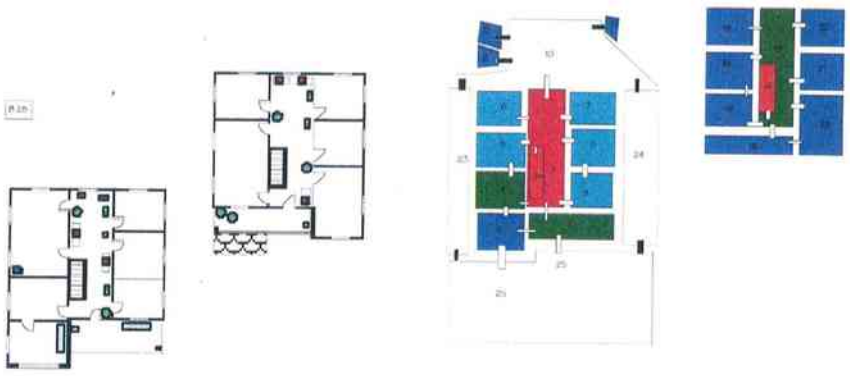


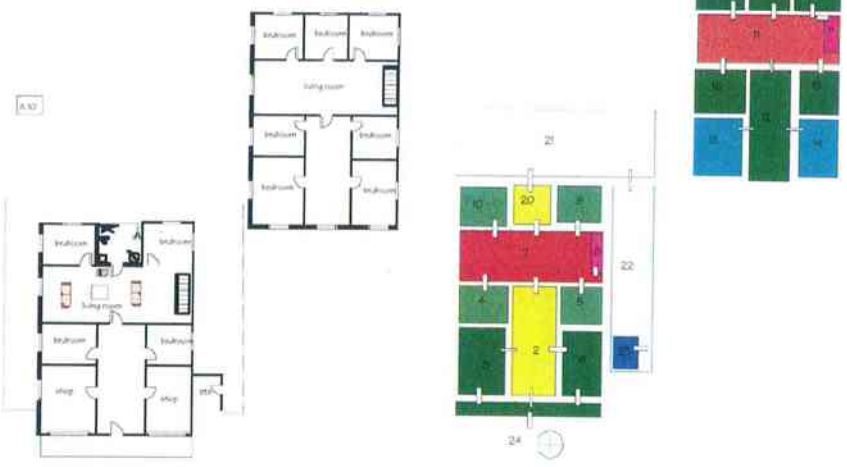
The Rooming type
House with no designated kitchen



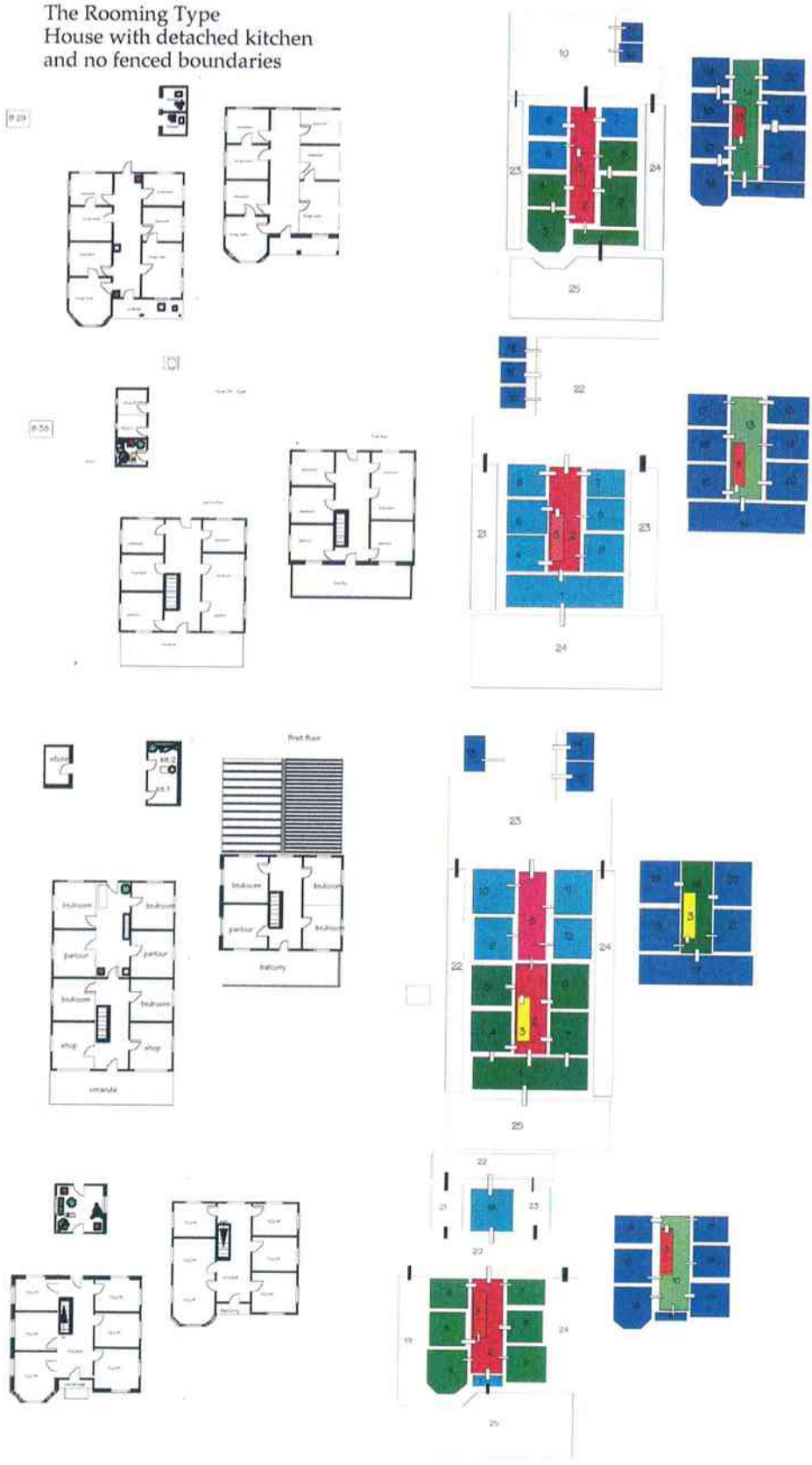
The Rooming type
House with no designated kitchen



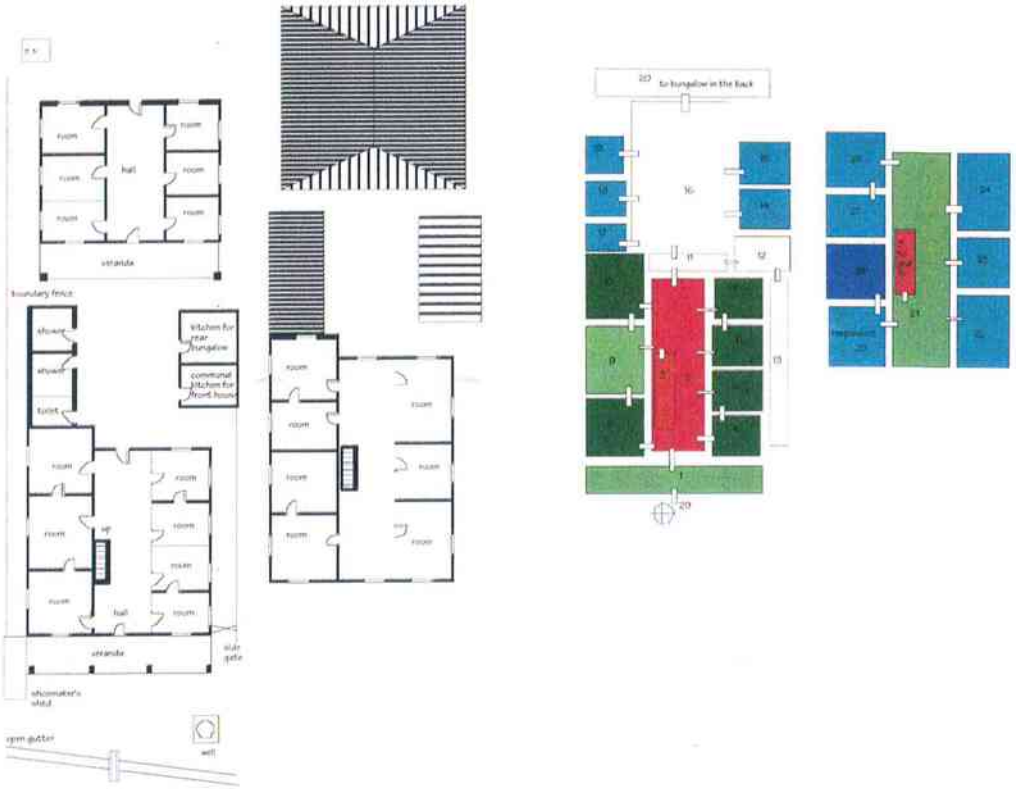


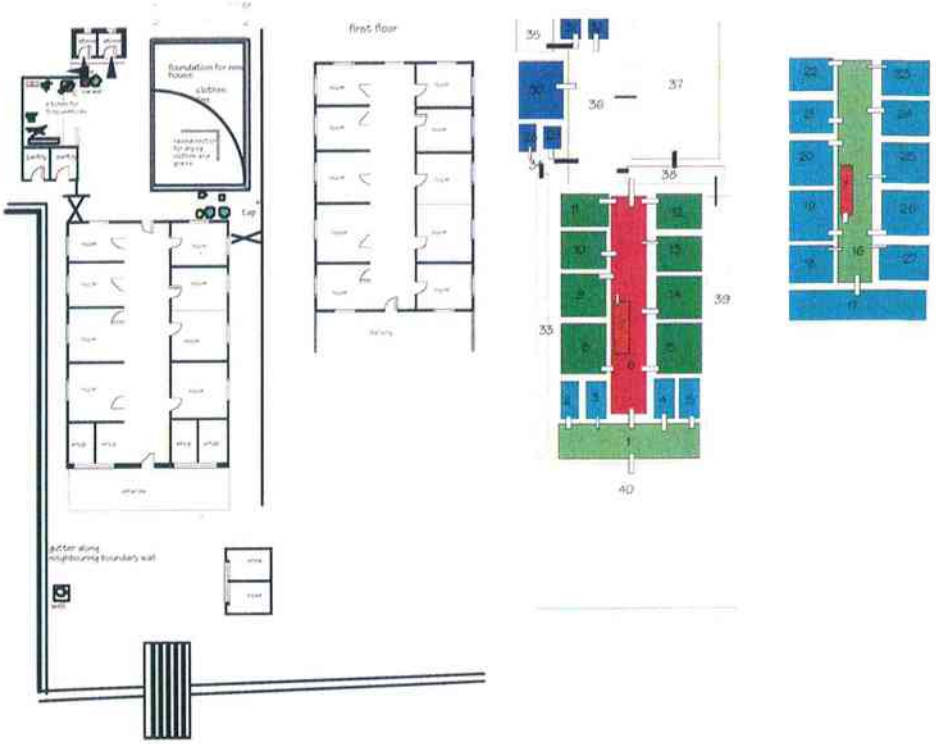


The Rooming Type
House with detached kitchen
and no fenced boundaries

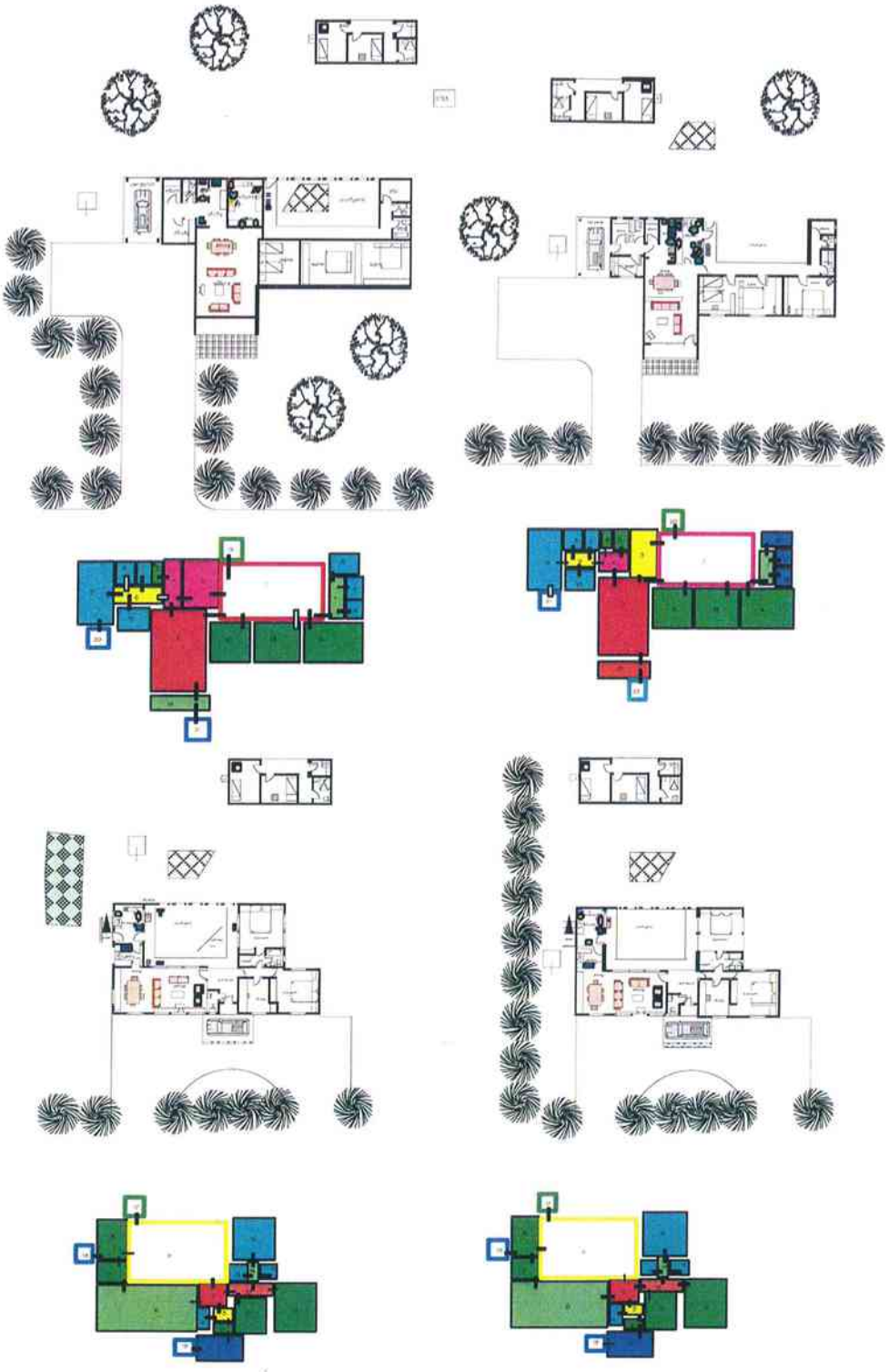


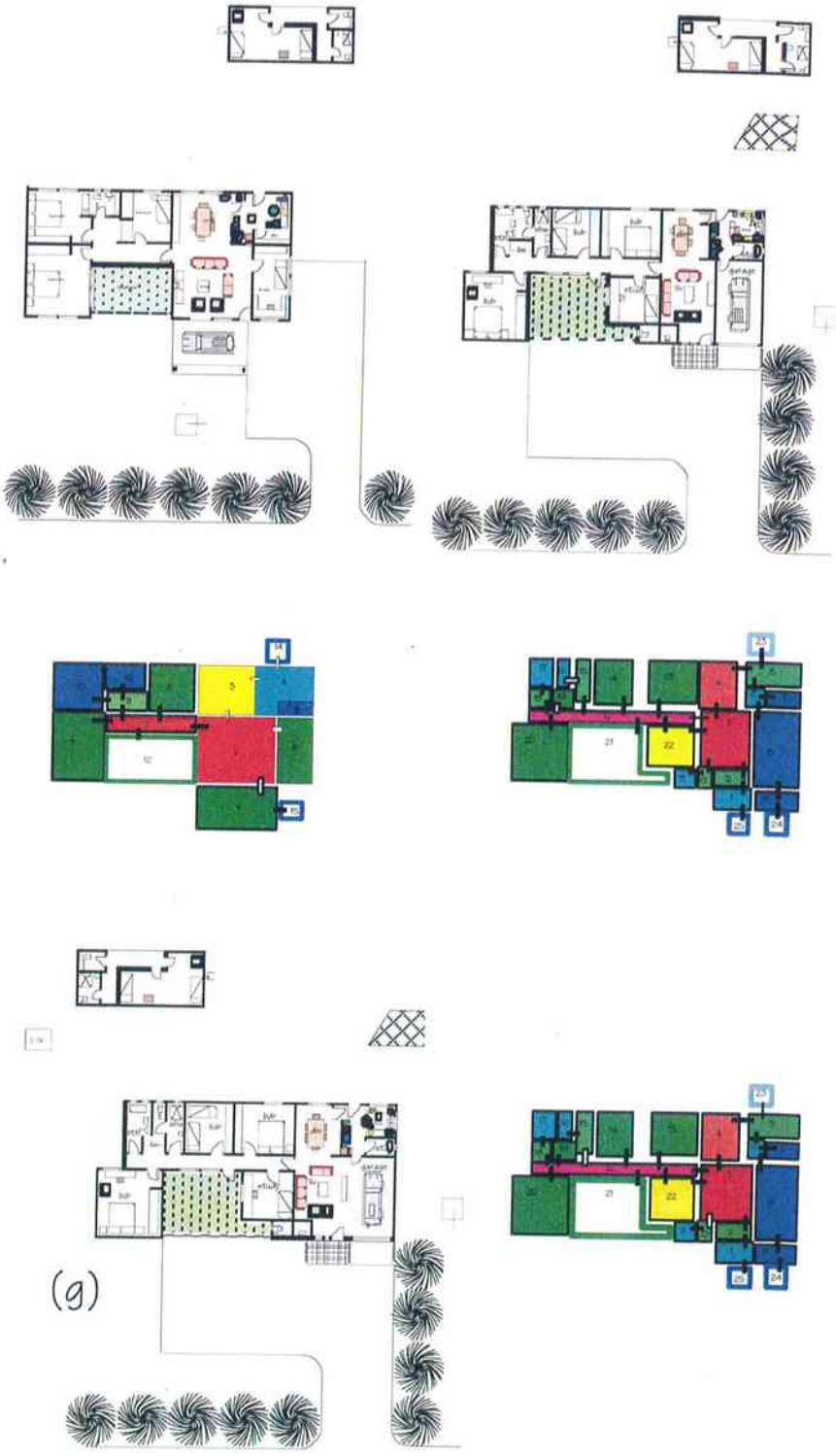
The Rooming Type
House with detached kitchen and fenced grounds





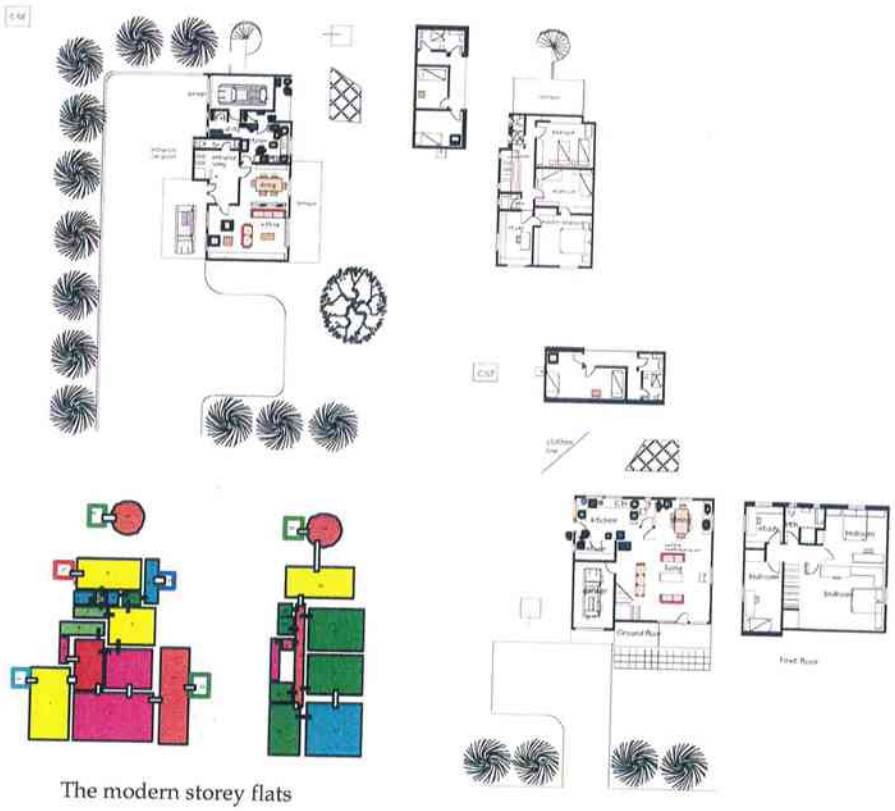
THE MODERN HOUSETYPE
The back-facing courtyard bungalow




(g)

MODERN HOUSETYPE
Corridor /bungalow sty;le

The modern storey house



The modern storey flats